

# Municipal Journal

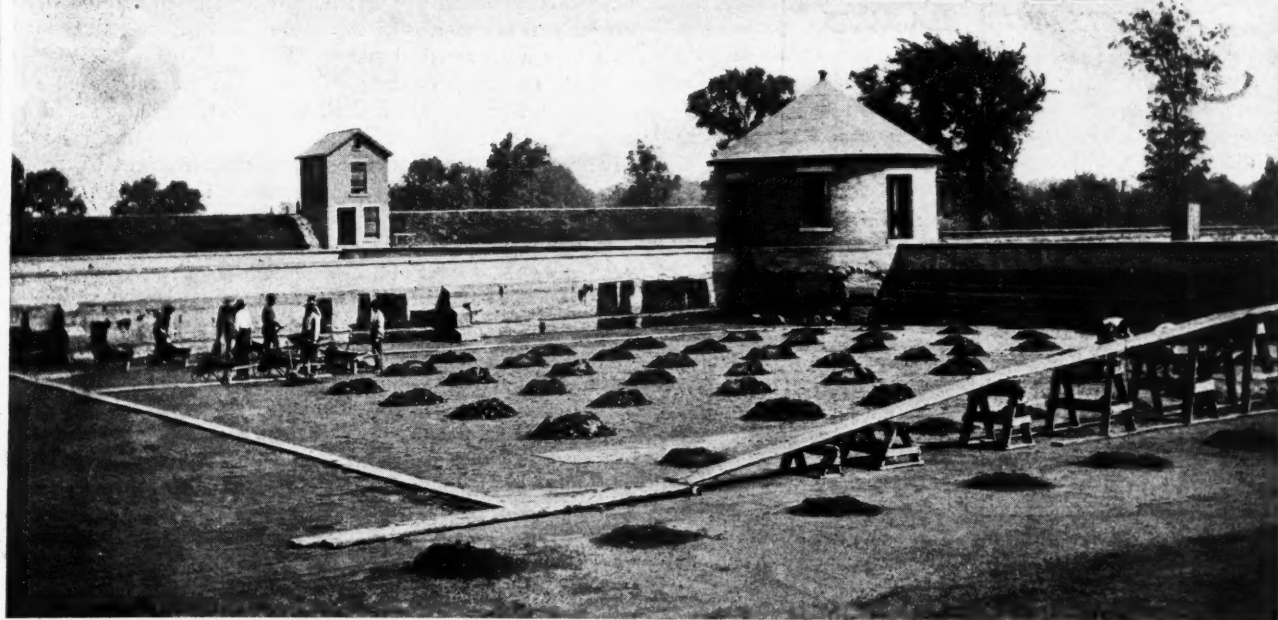
## And Engineer

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### ROCK ISLAND FILTERS



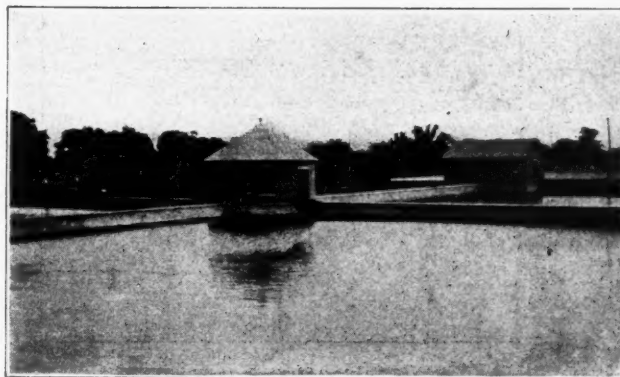
CLEANING ONE OF THE FILTER BEDS

**R**OCK ISLAND is a city of some 28,000 people, situated on the east bank of the Mississippi River, from which it draws its water supply. This river is always muddy, but at some times is worse than at others. Immediately above Rock Island and emptying its sewage into the river is the city of Moline, while directly across the river is Davenport. (This latter place, however, probably has no bearing on the water supply.) Realizing the menace to the health of Rock Island citizens which existed under these conditions, to say nothing of the unpleasantness of using muddy water, the city government authorized the construction of a filtration plant, which was completed in 1898. As has been proven by their experience, their selection of slow sand filtration proved unfortunate, and bids were received on Sept. 30th for some type of mechanical filtration plant. However, with the present slow sand filters, if the plant had been properly built and properly run, probably far better results would have been obtained.

The accompanying drawing shows the general layout of the plant. It is located about  $1\frac{1}{2}$  miles from the river and at a level some 160 feet above the same. A pumping station on the river bank receives water from an intake in the middle of the river and delivers the raw water through a 22-inch pipe to the two settling basins, from which it flows onto the filters. The lower part of the city is served by gravity from a reservoir, while the high section is supplied by an electrically driven

pumping plant located on the reservoir site and delivering to a standpipe connected with the distribution system.

The two settling basins each have a capacity of 1,500,000 gallons. They are connected to the filter control house by a 20-inch pipe, and a bypass also connects the raw water directly with the control house. This house has four wells, three of which are in use and discharge to the three filter beds which have been constructed, by means of three portals to each bed. These portals are on a level with the original surface of the filter beds.



GENERAL VIEW OF PURIFICATION PLANT

The filter beds are each 143 x 44 feet, and have concrete walls and bottoms. Six-inch drain tile, laid with open joints and with the bottom of the bell broken off so that they will lie flat on the concrete, collect the filtered water. These tile were covered with gravel to a depth of 12 inches, the first 7 inches being from 1 to 2 inches in diameter, the next 2½ inches being from ¾ to 1 inch, and the last 2½ inches being from ¾ inch down. This was originally covered with 4 feet of sand. From the filters the water goes to a gate house, where valves are located by which it can either be sent to the clear water basin or discharged into the distribution system. The filters were

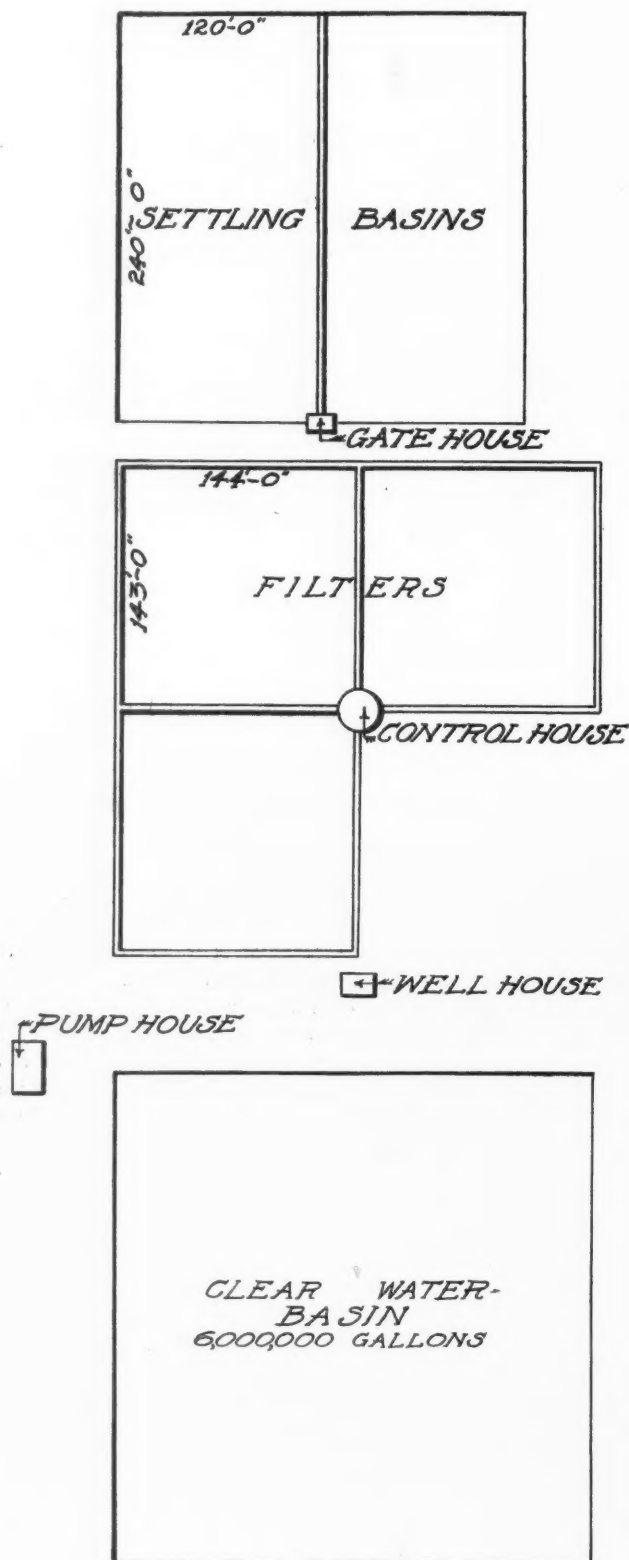
designed for a capacity of 1,000,000 gallons each, and the clear water basin holds 6,000,000 gallons.

Soon after the plant was completed leaks appeared, which were due either to faulty construction or to settling of the ground, which was of poor character. At that time an attempt was made to remedy these defects. A few years later a commission of engineers was appointed to investigate conditions, and their recommendations were carried out as far as possible.

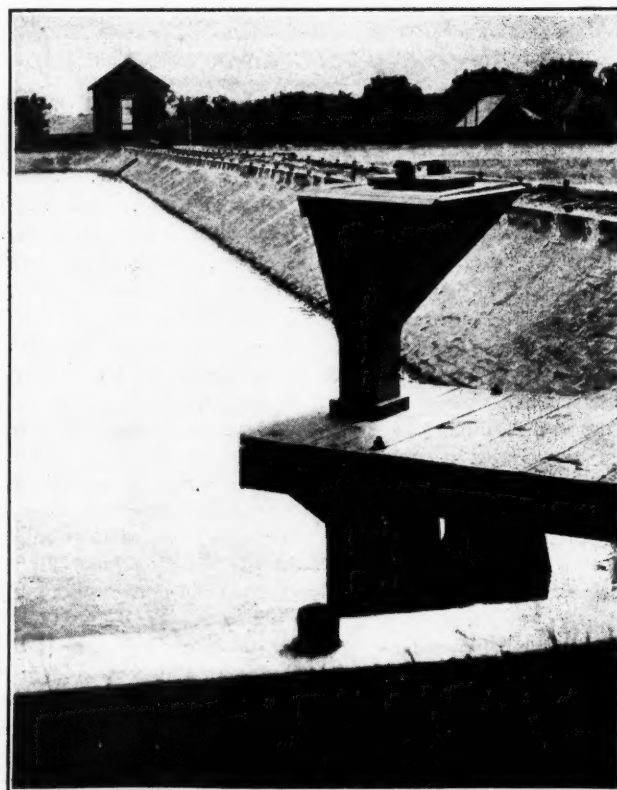
Two years ago an agitation was started to abandon the present plant, as it not only did not give satisfactory results, but also its capacity was outgrown. This agitation resulted in a vote for a bond issue for a new plant. Instead of hiring a competent engineer to give them advice on the matter, the city authorities decided to locate the new plant at the present pumping station, and asked the various filter companies to submit plans and bids. When these were received they were so complicated that the officials could not figure them out, and called in to help them two engineers, Mr. John W. Alvord and Mr. Edward Prince. After considering the bids and all the conditions, they recommended that all bids be rejected and new bids be taken for a plant to be located on the present filtration site, and it is in conformity with this recommendation that bids were received last week.

In the operation of the plant there has generally been a lack of care. For the most part, the superintendents have been men of no training or special ability in this line, who have been rewarded for political service by appointment to the position. Since the plant was started, eleven years ago, there has been no new sand added to the filter beds, with the consequence that at the present time there is only about twelve inches of sand over the top of the gravel. One superintendent believed that the sand had got packed too hard, and had the men thoroughly spade the surface without first cleaning it. This mixed much of the surface mud with the sand, a large part of which mud has now been removed by underfilling the beds and flushing them from beneath—a practice followed by the present superintendent, but not by a number of his predecessors.

In the early operation of the plant no coagulant was used. Later, it was thought wise to use a solution of sulphate of alumina, and it was introduced as a solution in the suction pipes of the pumps at the river. The present superintendent

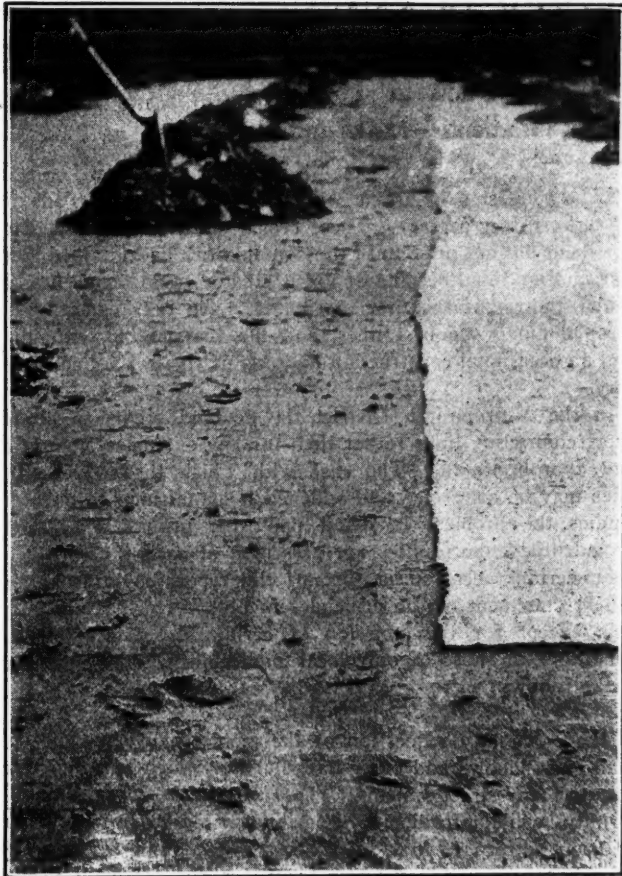


PLAN OF ROCK ISLAND FILTRATION PLANT



BOX FOR APPLYING ALUM, ROCK ISLAND





SAND BED, WITH MATTE PARTLY REMOVED

did not believe that this treatment was giving the desired results, and now introduces the alum into the settling basins at the point where the water enters. A box-like contrivance, shown in one of the views, is located at this point, with a spout extending to within three feet of the intake pipe. In the

bottom of the spout is a wire screen. The sulphate of alumina in solid form is dumped into the box and allowed to dissolve as it will. About 600 lbs. are used per day in the treatment of approximately 3,000,000 gallons of water. As the daily consumption is about 4,000,000 gallons and the filters will furnish only about 3,000,000, the rest is made up by introducing raw water into the storage reservoir. The effluent coming from the filters is clear and colorless. No figures as to its bacterial content were available.

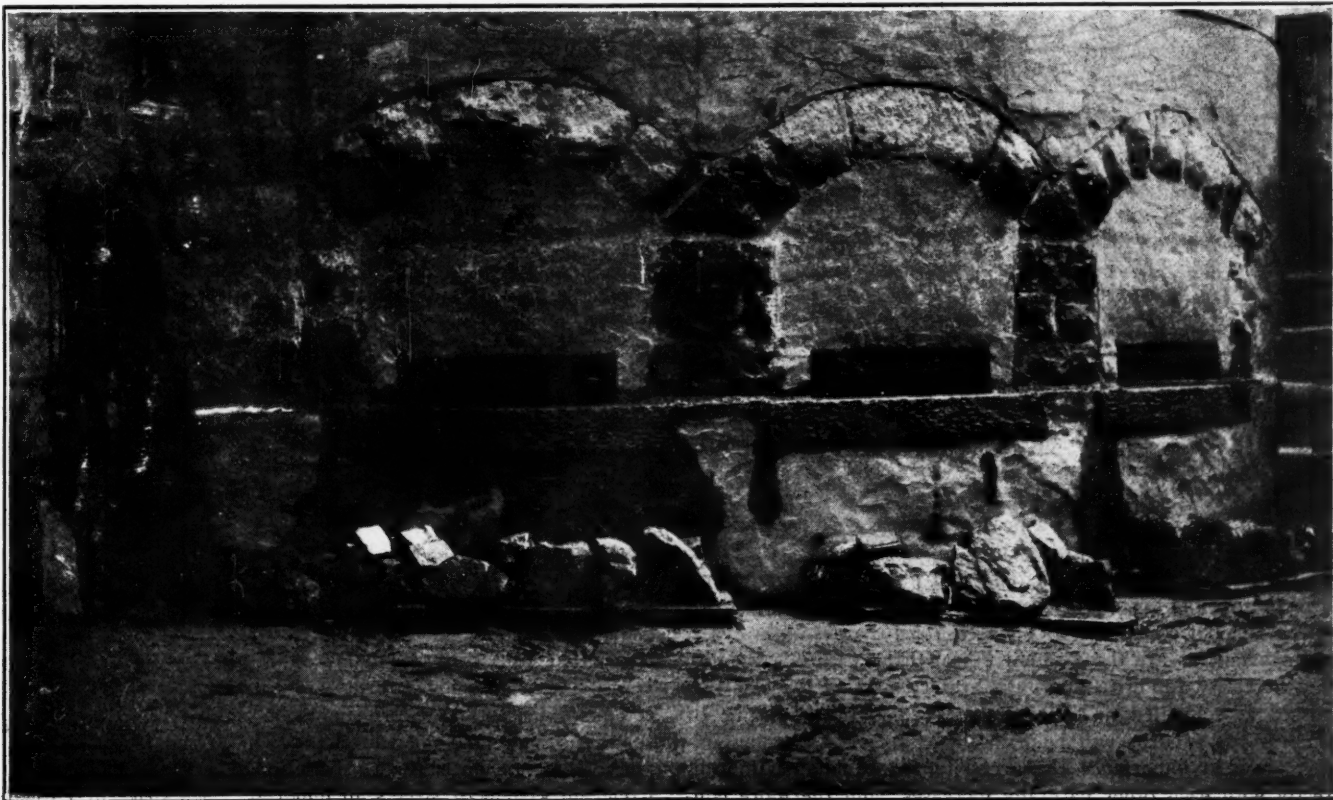
During extremely muddy stages of the river it is necessary to clean the beds as often as possible, the interval between cleaning probably being about eight or nine days. When the river is in good condition the period between cleanings is about thirty days. When the water is drawn from the filters for cleaning there is found a thick black matte on the surface of the sand, which gives off an offensive odor. It is necessary to remove about one-half inch of the surface. This is shoveled in piles and removed in wheelbarrows. It takes nine men about twelve hours to clean a bed, and from 25 to 30 yards of material are removed.

At times the surfaces of the water in the settling basins, the filters and the clear water basin are covered with a growth of algæ. As far as could be learned, no very serious attempt had been made to prevent this growth.

One of the interesting conditions at the plant is a known leak by which a loss of about 500,000 gallons per day occurs. This has been leaking for several years, but no attempt has been made to fix it, although the present superintendent expects to do so before long.

#### FIGHTING TYPHOID IN WASHINGTON

IN view of the fact that typhoid conditions in Washington, D. C., are less favorable than they were a year ago, indicating a failure to obtain any control of the disease in the District, the Commissioners have appointed Dr. J. J. Kinyoun, Professor of Pathology and Bacteriology at George Washington University, to devote practically all of his time to the work of ascertaining the sources and mediums of infection. During the first six months of 1908 there were 24 recorded deaths from typhoid, and 45 during the first six months of this year.

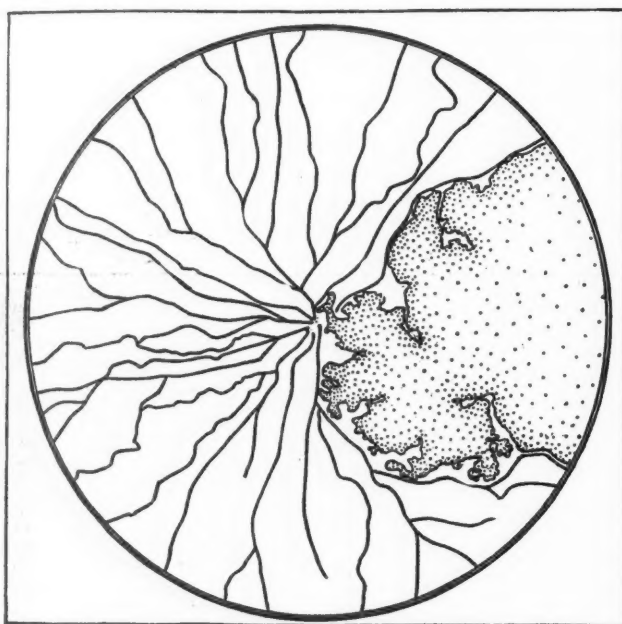


PORTALS FOR FILLING SAND BED FROM WELL  
Sand was originally at level of openings, but has been lowered by scraping

## SOME PRINCIPLES OF CITY PLANNING

### Location of Radial and Cross Thoroughfares—Adapting Street Plans to Topography—Width of Street Required for Various Amounts of Traffic—Street Gradients—Parks and Parkways

SOME of the principles which it is thought desirable to follow in planning the streets for the Metropolitan District (Boston and vicinity) are given in a report of the Metropolitan Improvement Commission, having been written for the commission by Mr. Arthur A. Shurtleff, landscape architect. He first calls attention to the remarkably regular system of radial roads which connect Boston with the country on all sides of it, which roads were designed on no particular system, simply growing as the demands of the country called for them. In the majority of cases the roads originated as trails and were gradually widened and in some cases straightened, but retain their general layout to the present day. Although we do not find Mr. Shurtleff remarking on the fact, it has frequently seemed to us that these early roads do in the majority of cases prove to become the most important thoroughfares of the city as it gradually extends along them; and not only this, but the experience and the wisest knowledge of later years seldom improve upon their location. Many instances of this could be referred to, and among them cases where such highways have persisted in spite of a tendency to lay out the city upon a rectangular or gridiron plan. The accompanying illustration, taken from the report, shows how completely the country surrounding Boston has been rendered accessible by these radial thoroughfares.



EXISTING RADIAL THOROUGHFARES OF METROPOLITAN DISTRICT

Attention is called in the report to the fact that these thoroughfares have become altogether too narrow for present needs, and the remedies suggested for such conditions are either widening the main thoroughfare, relieving it by diverting a portion of its traffic into a nearby local street, or creating a new and ample thoroughfare upon a new location. It should be said that in carrying out the third alternative the general direction of the original thoroughfare should be adhered to or traffic will not consent to be diverted from the old highways.

Important as are these radial thoroughfares, the desirability and necessity for cross thoroughfares connecting these is discussed at some length. While a large part of the traffic of the various suburbs will be with the city, as these communities grow in importance the necessity for communication directly with each other naturally increases; and the more convenient such direct communication becomes the less will the streets and thoroughfares reaching to and from the center or

hub be congested by traffic which should find cross roads for its more direct passage. These cross roads, since the demand for them did not arise until the communities had attained some size and land had become of much greater value than when the radial thoroughfares first originated, have not generally developed along the best lines, and the rearranging, extending and an occasional construction *de novo* of these is found necessary.

In the Metropolitan District the demand seems to be for short connecting links rather than for any extensive amount of new thoroughfares. "The ease with which the cross-district lines may be connected and widened is astonishing to one who studies the problem in detail upon the ground. Seemingly providential opportunities are presented at each juncture."

Concerning local street systems the report contains an excellent statement of the principles involved, which is quoted in full, except for the omission of certain references to local conditions or those of only local applicability. This statement is as follows:

#### STREET PLANS

There can be no question of the picturesque value of jogs, dead ends, elbows and other irregularities which lend individuality to many street systems. These departures from strict uniformity, while affording a welcome variety in the prevailing gridiron pattern of our local streets, also tend favorably in some instances to deflect traffic from localities especially needed for residential use. Irregularities of this kind, no matter how picturesque, should not be allowed to remain, however, in localities which lie in the path of traffic or which are needed for important business use.

For lack of level ground, and to satisfy the modern popular demand for house sites upon commanding elevations, the private development of streets upon abrupt hills has assumed widespread proportions throughout the suburbs of Boston. These developments, familiarly known as land-development schemes, are usually undertaken by land owners hastily and at the smallest possible initial expense. As a consequence, a scheme of roads is usually adopted which requires the least amount of surveying to line it out upon the ground and the least amount of clerical work to describe the land in the deeds of conveyance. The scheme of road subdivision which is adopted in such cases is naturally the rigid gridiron. Although such a scheme may be laid out cheaply, and the lots sold and their streets then saddled upon the town, they are exceedingly expensive to the community in the long run, for the reason that their roads are too steep for convenient use or for economic maintenance.

Road systems of this kind, which conserve the resources of hilly ground in spite of its topographical difficulties and render it valuable to the community as a whole, are an asset to the district. Those road systems of an opposite kind, which tend rather to fortify the hills as permanent obstacles in the traffic circulation of towns, become a perpetual source of inconvenience and expense to the community. This type of development should be checked by acquainting the public with its folly, by illustrating rational solutions with working plans, and by securing better laws for its control. The larger rights of the community should not be at the mercy of individual caprice.

In order to assure the extension of old streets which with new connections may afford useful through streets for the community, a similar effort should be made to control private subdivisions of land upon level ground. It should not be permissible, for instance, for a private individual to fill in with an irrelevant system of streets an important open space in a town which needs for the convenience of the community a system of streets connected with those already built.



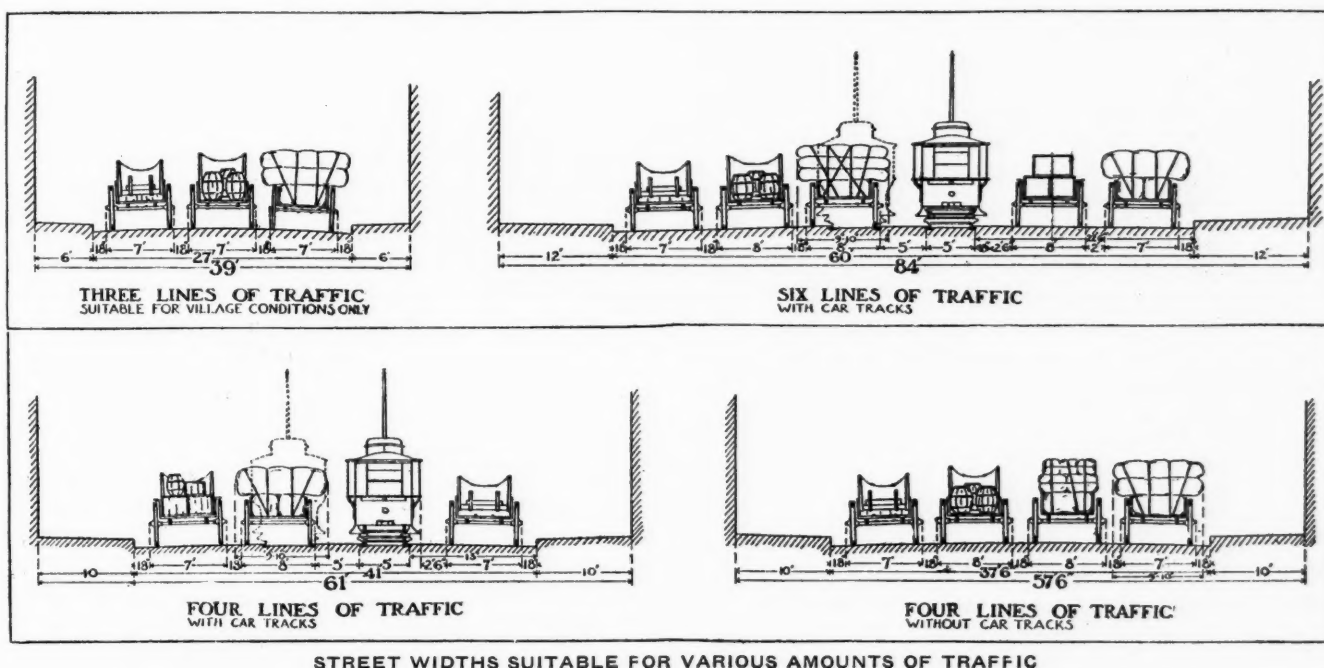
## WIDTH OF STREETS

Measurements have been taken throughout the district of the width of local streets, and a summary of these measurements has been made which shows that a width of about 40 feet prevails. While such a width may be serviceable for streets of residential localities and for certain business districts, it is wholly inadequate for thoroughfares which are to carry even a moderate traffic. The streets of Buffalo average from 66 to 99 feet in width. Minneapolis has few streets narrower than 60 feet, the majority of them being from 60 to 100 feet. The outlying streets of Chicago range from 66 to 100 feet in width.

Although the capacity of a street to carry traffic can be determined with accuracy, there is, nevertheless, a half-hearted belief, amounting to a superstition in the community, that certain streets have individual characteristics or dispensations which render comparisons of their widths with the widths of other streets largely inconclusive. For this reason it may be fruitless to point out that by far the greater proportion of the streets of the district are too narrow to accommodate traffic even of the

The more general factors governing the minimum width of streets may be briefly described as follows:

A country street, upon which carriages pass infrequently, need not have great width; if sufficient space is provided for two vehicles of ordinary size to pass one another little remains to be desired. A street in a village, however, should have sufficient width to allow vehicles delivering goods or passengers to stand at each side of the traveled way, while leaving sufficient gangway between them for a chance moving vehicle to pass, and it should also provide sidewalks for foot passers. Assuming each vehicle to have an over-all width of 7 feet (the width of an ordinary express wagon or milk cart), and to be allowed a leeway of 18 inches on each side, the total width of such a street, with narrow sidewalks (6 feet wide), becomes 39 feet. A street of this capacity would evidently be inadequate for an important street of a country town where vehicles are constantly passing in each direction, and where opportunity should be allowed for two vehicles, even of the widest kind, to pass freely between those standing at the side of the road.



lightest kind—that is to say, the majority of the streets are not wider than Court Street, Boston, at the Ames Building (approximately 40 feet wide), which has been for years a bane to traffic because it will accommodate only three lines of vehicles. The wider streets of the district, as an average, are equivalent in width only to that portion of Devonshire Street between the Old State House and Adams Square (approximately 50 feet wide)—a street which will accommodate, only with serious crowding and with narrow sidewalks, four lines of vehicles, including a double track for electric cars. The great streets of the district are exceedingly few in number, and are almost wholly comprised by the main radial thoroughfares, the several pleasure parkways and boulevards, and a few cross streets like Massachusetts Avenue and Southampton Street, Boston, and the Brook Road, Milton.

The conclusion is not drawn from this situation that wholesale widenings must be made throughout the district. It is to be concluded, rather, that those streets whose importance for traffic purposes is unquestioned should be made the subject of careful study. In a majority of cases it will be found that costly widening of built-up streets can be obviated by deflecting a part of their traffic into nearby streets whose widening and extension can be cheaply effected, or by building new streets in adjacent vacant land. Our cities and towns, and, indeed, a large portion of Boston, are still in a formative condition, and the time is, therefore, by no means past when improvements can be carried out in this manner at relatively small cost.

Moreover, the sidewalks should be wide enough to accommodate a greater number of foot passengers. Assuming half the vehicles to measure 7 feet over all in width, and the other half to measure 8 feet over all (the width of the widest drays), such a street becomes 57½ feet wide, with 10-foot sidewalks, but without accommodation for electric cars.

Important side streets or the main street of a town should be made wide enough to accommodate two electric car tracks in addition to other traffic. Inasmuch as teamsters habitually fit the near wheels of wagons in the near rail of street car tracks, and as such rails are about 5 feet apart, the two inner lines of wagon wheels cannot conveniently approach nearer than this distance. Assuming four lines of wagons, one-half being 7 feet wide and the other half 8 feet wide, the curb width of such a street becomes 41 feet, and the entire width, with 10-foot sidewalks, becomes 61 feet.

It is evident that the presence of electric cars upon a street of this width presents great inconvenience to the inner lines of wagons, since they are constantly obliged to swing off to the curb line to give way to passing cars, which in their turn are subject to delays occasioned by the tardy movement of wagons. To relieve this difficulty it often becomes necessary to free the car lines of wagon traffic by providing more ample accommodations alongside. Assuming 7 and 8-foot wagons and 12-foot sidewalks, the curb widths of such a street become 60 feet and its total width 84 feet.

To insure a constantly clear right of way to the car tracks

of such a thoroughfare, a special reservation is often provided by enclosing the car tracks with curbs, over which vehicles may not pass, making a street 95 feet wide. This arrangement divides the street in two and largely prevents erratic diagonal movements of vehicles. To permit freedom of movement in these divided ways, and to allow greater traffic capacity in highways of such importance, it is customary in most cities to provide room for three lines of vehicles on each side of the car reservation.

A street which is intended to carry a large amount of pleasure travel together with a considerable volume of traffic should have special accommodation made for this composite use. This is necessary no less for the convenience of traffic than for the comfort of pleasure vehicles. To allow light, rapidly moving vehicles to mingle with heavy, slow-moving traffic places a premium upon confusion and danger. Assuming four 7-foot vehicles upon a pleasure driveway between two car lines, and assuming two traffic streets for three lines of 7 and 8-foot vehicles each, together with two sidewalks of 12 feet each, the total width of such a thoroughfare becomes 165 feet.

The width of all modern streets in the metropolitan district should be determined with regard to the number of lines of vehicles which they are to carry, the width of the vehicles themselves, a safe and convenient leeway between the vehicles, and with regard to ample sidewalk widths. The mere fact that our ancestors found 40 and 50-foot streets convenient for village and town use furnishes no reason for supposing that such traditional widths are suitable for modern city conditions, and for the use of modern drays, power vehicles, electric cars and for the crowds of foot passers which throng our sidewalks. The time has passed when any community in our district should permit a 40 or a 50-foot street to be laid out or perpetuated if it is to carry important traffic. Practice and not theory alone has established the folly of such narrow streets for such service, and has approved the wider 60-foot street, which at best provides only meager sidewalk accommodations. While streets should be made as narrow as their requirements will permit in order to waste as little land as possible which might be devoted to building purposes, proper consideration should be given to their service as providers of light and air, as providers of shade by street trees, and as features of visual attractiveness.

#### GRADIENT OF STREETS

A decade ago, when the bicycle was generally used by a large proportion of the community, an appreciation of gradients was brought home to all of us. Until that time a knowledge of the significance of steep hills had been largely the special privilege of drivers of heavy wagons and drays. To-day the situation has undergone another change; bicycles have gone out of vogue and only a small proportion of the public is physically inconvenienced by bad gradients, while a large number of persons have learned to disregard them wholly by that new standard of strength, the high-powered automobile—a vehicle which climbs hills in the same manner that it almost annihilates distance. There is a danger, therefore, that the dependence of heavy, horse-drawn vehicles and of power trucks of heavy burden upon easy gradients may be overlooked. To forget this need would be to neglect the first requirement of a road suitable for use by all classes of vehicles.

The need of providing gradients of the least possible steepness is made evident upon considering the rate at which the efficiency of draft horses decreases upon sloping ground. Upon a gravel street which rises 3 feet in a distance of 100 feet (forming a 3 per cent gradient), a horse can pull only one-third the load which he could draw upon a level gravel street. If the steepness of the street be increased to a rise of 7 feet in 100 feet (a 7 per cent gradient), the load drawn becomes only one-tenth of that possible upon level ground, while upon a gradient of 10 per cent only one-fiftieth of the original burden can be moved. Similar laws limit the traction of motor vehicles. The astonishing drawbacks of hills having only a moderate slope have led most municipalities to require gentle

gradients, even at great cost, for important bridges and for other works where the slope of roads is controllable. Evidently it should be an object of any organized system of highway improvements to secure the easiest gradients possible.

#### RELATION OF STREETS TO PARKS AND PARKWAYS

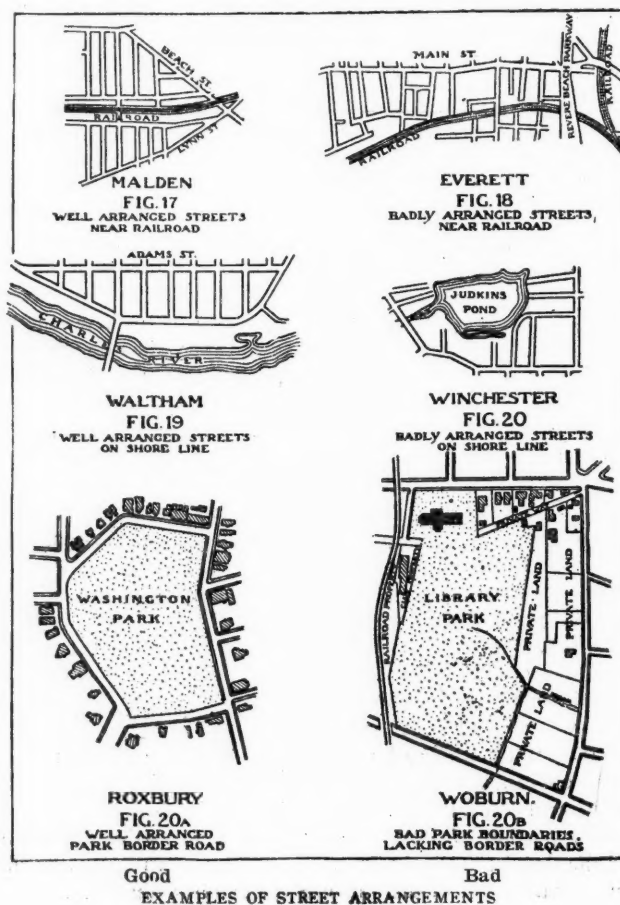
Large parks, if they are to fulfill the purpose which justifies their cost, must of necessity interfere in some measure with the lines of streets. To allow traffic ways to cross them frequently, or to cross them at all where their landscapes require continuity, would be a waste of the public funds invested in the park. The parks of Boston and the Metropolitan District are designed to offer the least obstacle to local streets while maintaining adequate landscapes. Traffic roads, carefully designed to be hidden from the scenery of the park, cross many of them.

The majority of the greater parks and reservations are also provided with complete systems of border roads, the purpose of which is to connect, in a workmanlike manner, local streets which abut upon the park and which without a boundary road would terminate in dead ends. The border roads also simplify the control of trespasses and nuisances affecting private property as well as parks upon park boundaries.

Property upon the margin of ponds and streams is safeguarded by border roads of this kind, since they allow houses to be built facing the water rather than backing upon it, and insure ready policing, to prevent disorderly misuse of the water frontage. Such roads should be provided in the course of time along the borders of all waterways of the district which are unprotected by parks or which are not to be reclaimed by filling or used for mercantile purposes.

Similar border roads are desirable upon the margins of parks, to secure for them frontages of houses facing upon the park rather than backing upon it, and at the same time to prevent trespass or disfigurement of the park. These border roads also prevent pleasure seekers from trespassing upon adjoining private grounds.

A number of local parks in the district are unprovided with border streets of this kind, and as a consequence dwellings are being erected adjoining them with their sides or backs turned toward the park. In the metropolitan park system and in the





city of Boston park border roads have been provided in every instance as an organic part of the design of the park. Cemeteries are in need of the same sort of protection for the orderly development of property upon their borders. It may be said that the cemeteries of the district are largely unprovided with border streets, with the result that they are suffering seriously by the aspect of rear premises which are exposed toward them, and by rubbish which is cast into them over the fences of adjoining private property.

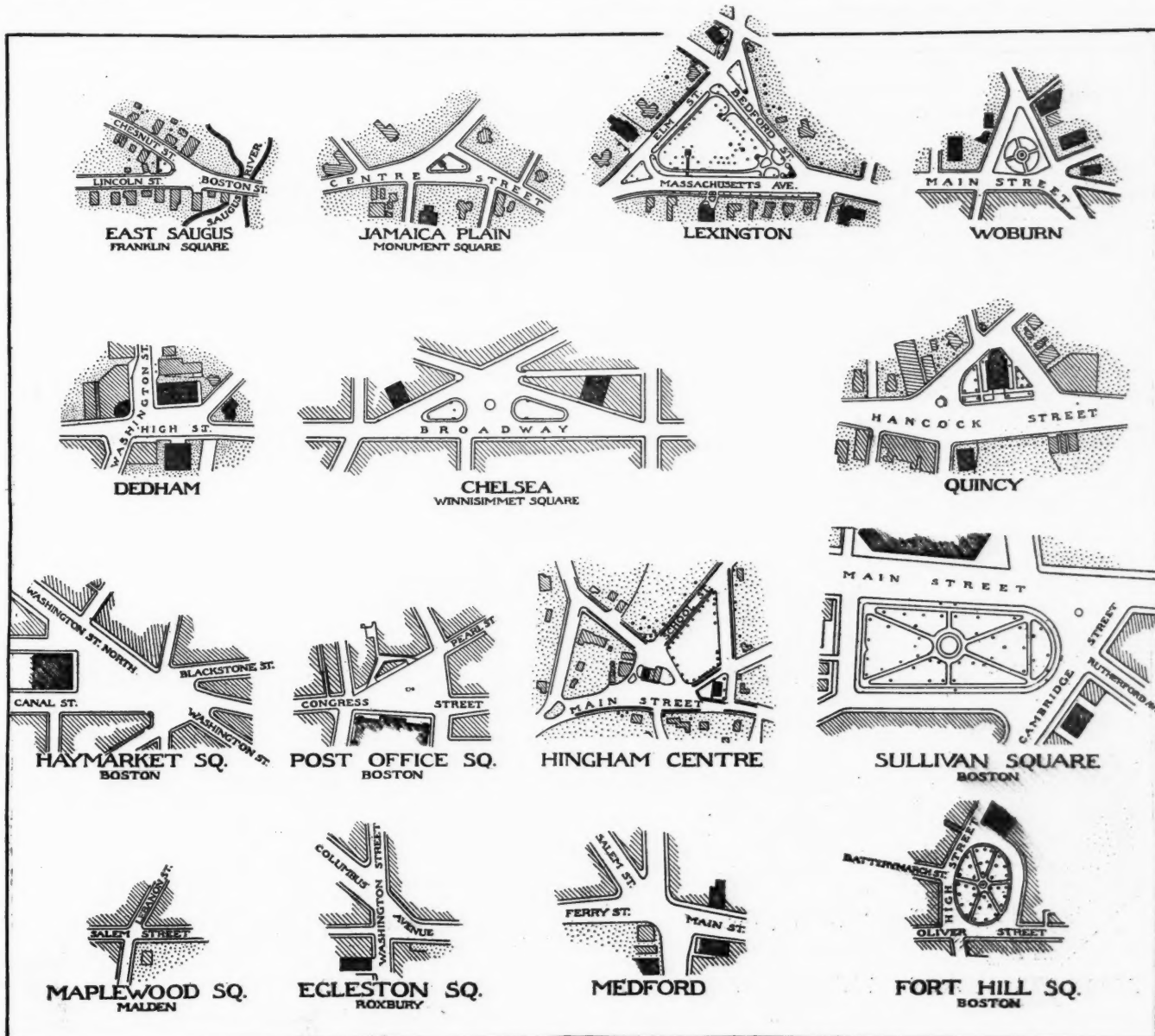
The parkways of Boston and of the Metropolitan District are designed, with few exceptions, to exclude traffic, inasmuch as their chief function is to allow pleasure vehicles to circulate to and from the parks without danger of annoyance by teaming. In some instances traffic roads are provided paralleling the parkway, as in the Arborway, while in other cases land has been secured for such traffic ways, though they have not been built, as in the instance of the westerly portion of the Revere Beach Parkway. Electric car reservations have also been provided in the majority of the metropolitan parkways.

Generally speaking, the provision for traffic in the parkways has been satisfactory, but there is a growing feeling that the pleasure ways of the future should provide better accommodation for traffic. Similarly, the greater traffic roads which are to be built should provide accommodation for pleasure vehicles. Such reciprocity of public service is needed in most metropolitan thoroughfares, especially in those which follow circumferential courses.

#### SQUARES AT TRAFFIC CENTERS

Throughout the Metropolitan District at the junction of important thoroughfares a variety of open spaces occur which are generally known as squares. They are usually found in the older parts of the community where main roads fork in the shape of a Y or T, while they rarely occur where two main lines cross at right angles. This fact readily explains their prevailing triangular shape, which originates from the rounding or cutting short of angles of the fork, to facilitate the movement of vehicles or foot-passers and to provide space for the accommodation of vehicles stopping at watering troughs or at stores.

In the majority of the suburbs the square has become a center in all senses of the word, and has been treated as a place of distinction, typifying the civic pride of the community. In it are found the finest mercantile buildings, churches and municipal offices, together with public monuments, flag poles and bandstands. These open spaces are *propylaea* and *fora*, and perform a service which cannot be transferred to that more general class of recreative open spaces—the parks. In certain communities the triangular squares were made unusually large in size for reasons of local convenience or taste, and have become noteworthy in the Commonwealth for their admirable appearance. The great square or common of Lynn should be included among such notable open spaces. In the district as a whole, however, squares were laid out upon a meager scale. They were designed for rustic communities, in



TYPICAL MINOR OPEN SPACES IN METROPOLITAN COMMUNITIES

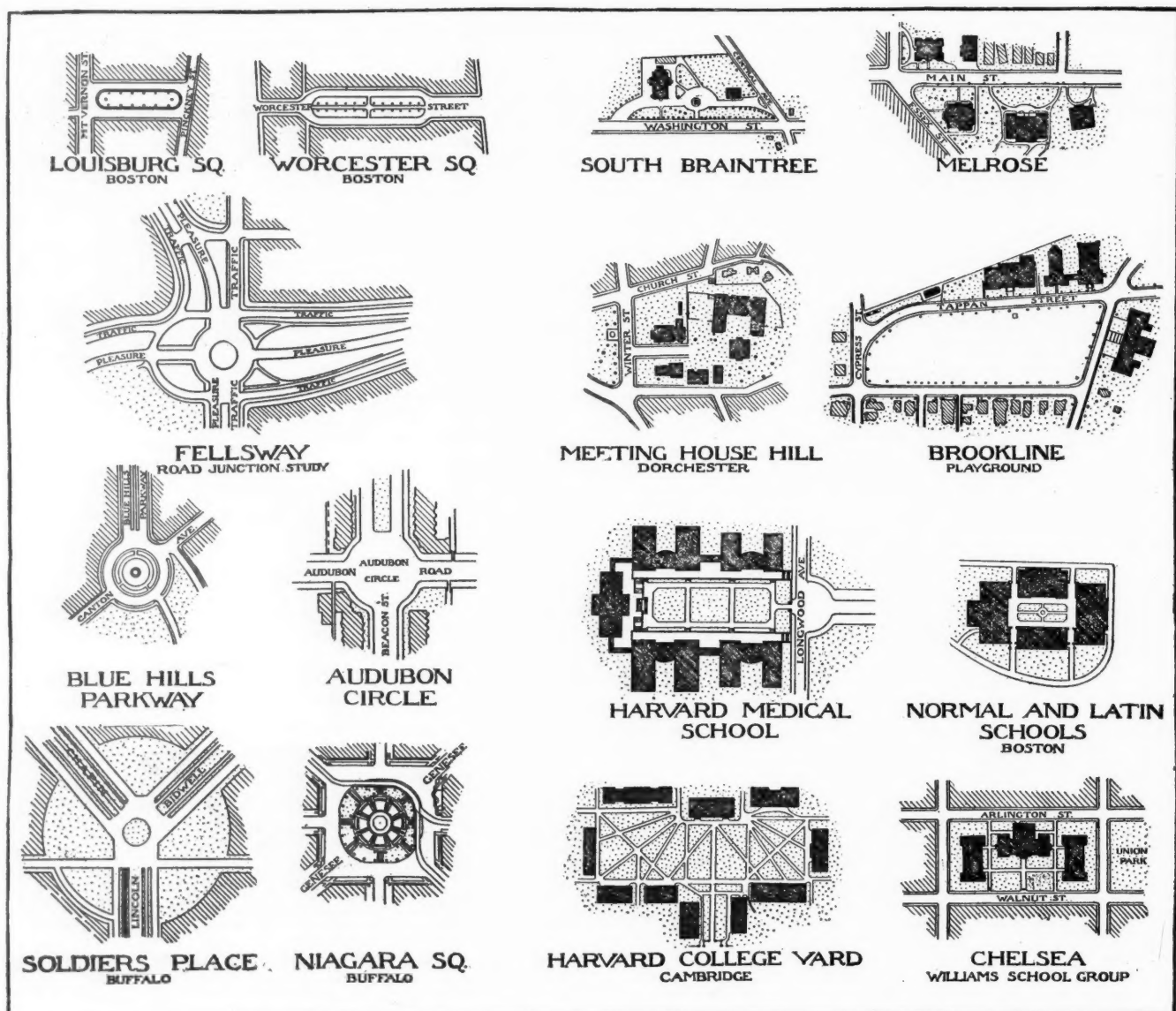
which they were once a conspicuous center, but as these villages have grown to the proportion of cities and towns the squares have become too insignificant in relative size to perpetuate the old sentiments of distinction. It remains for such communities to decide whether they will allow the ancient sentiment and its visions to be wholly lost in this manner; they should decide whether they are satisfied merely to repaint their old liberty poles and replant the ivy around their soldiers' monuments, rather than to enlarge the square itself to a size commensurate with the regard in which the citizens esteem their own history and the individuality of their community.

Copley Square, Boston, and Winnisimmet Square, Chelsea, are interesting composites of the triangular and rectangular squares.

It should not be supposed that the presence of a square at a meeting point of traffic roads necessarily prevents or even relieves traffic congestion at that junction. On the contrary, it may contribute to congestion by allowing several merging lines of vehicles to lose their continuity and to become snarled in a manner impossible in narrower channels. For example, the traffic difficulties of Haymarket Square are intensified not alone by the great number of streets which lead directly into that open space, but by the field which is offered there for the erratic movement of vehicles. In Sullivan Square, Charlestown, on the contrary, the presence of a large central reserved plot prevents such disorganized use of the open space while contributing to its safety for pedestrians and to its good appearance. The great triangle (occupied in part by a church) in Quincy Square, Quincy, tends in the same manner to maintain

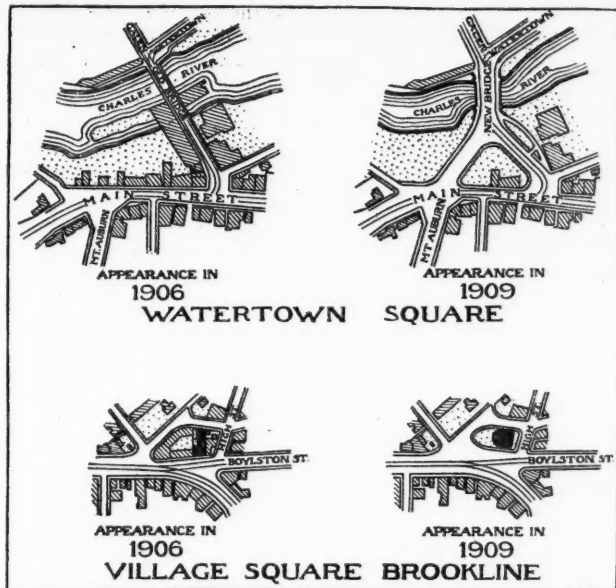
unbroken the lines of traffic while passing through the square. An open space still better designed to prevent traffic disturbance is illustrated in the square of Hingham Center, which enjoys no considerable traffic at the present day, but is well designed for traffic contingencies. This plan shows the side streets through which vehicles may pass to the most favorable side of the square before entering it, and by means of which diagonal crossings through the midst of the square may be almost wholly avoided. By-pass streets of this character, intended to classify traffic before it enters an open space, or to permit a portion of the traffic to go around the center of congestion, should be incorporated in the design of future open spaces of this character. A design intended to solve traffic problems at a square in this manner is admirably shown in the proposed junction of the Fellsway with the Revere Beach Parkway. The diagram illustrates the separation of traffic from pleasure vehicles, and shows an attempt to retain the decorative advantages of the characteristic "Round Point" while divesting it of its usual serious traffic complications.

The days of square-building are by no means past. Watertown has just created a new center of this kind, and the enlargements of Village Square, Brookline, and the improvements at Belmont may be named in the same class. To allow two great thoroughfares to meet or to cross one another without providing an enlargement at the junction to accent the importance of a focal point would be to commit a structural mistake, and to miss an opportunity for desirable variety in the usual monotony of streets. Should the metropolitan community construct in the future the much-needed circumferen-



SQUARES IN RESIDENTIAL SECTIONS OF THE METROPOLITAN DISTRICT AND BUFFALO





ENLARGEMENTS OF "SQUARES" RECENTLY MADE

tial thoroughfares, a number of squares ought to be created where these new ways cross the radial thoroughfares. These points of traffic confluence should be made at once convenient for use of vehicles and shapely for the satisfaction of the eye. Posterity should then be able, by the buildings which it might erect upon the margins of these open spaces and by the monuments and decorations which it might provide for its islands of safety and division, to render these squares fitting expressions of the forethought of a past and a taste of the new generation.

Long after the triangular squares of the traffic centers were built many rectangular squares were created throughout the district in residential localities largely for decorative purposes and to afford recreative opportunities. Since they formed integral parts of land-development plans, laid out with gridirons of streets, their form naturally became rectangular. This characteristic gives them an orderly appearance, and makes them an intimate part of their architectural surroundings.

Fortunately we have in our midst a sufficient number of the picturesque squares of early times to permit us to develop more geometric forms without running a risk of mannerism. Squares of this symmetrical type prevail in many parts of our country as well as in Europe. Soldiers' Place and Niagara Square, in Buffalo, belong to this type. Audubon Circle, Boston, and the circle (whose central plot was lately removed as a hindrance to traffic) at the junction of Canton Avenue and the Blue Hills Parkway of the Boston metropolitan park system, are similar in design. Squares of this circular form are becoming so numerous both in this country and in South America, as well as in Europe, that there is likely to be a changed feeling with regard to the constant repetition of a figure so commonplace and so productive of traffic congestion.

A review of open spaces at the junction of important thoroughfares cannot be dismissed without mentioning the relation of public buildings to such squares. Since the earliest times it has been customary to place churches and town buildings upon the borders of the town squares, but of late this custom has received a new impetus. To secure desirable architectural effects and to permit convenient administration, a general movement has been inaugurated all over the district to gather libraries, schools, city halls and other public and semipublic buildings into groups. The appearance of these compositions depends, of course, upon the success with which the new buildings have been placed in relation to the old ones and upon the adaptability of the ground to use for building sites. Few towns have prepared at the outset a careful group plan by which the position of future buildings can be known, and by following which an agreeable appearance and a structural convenience may be assured. It is too often the custom to regard each

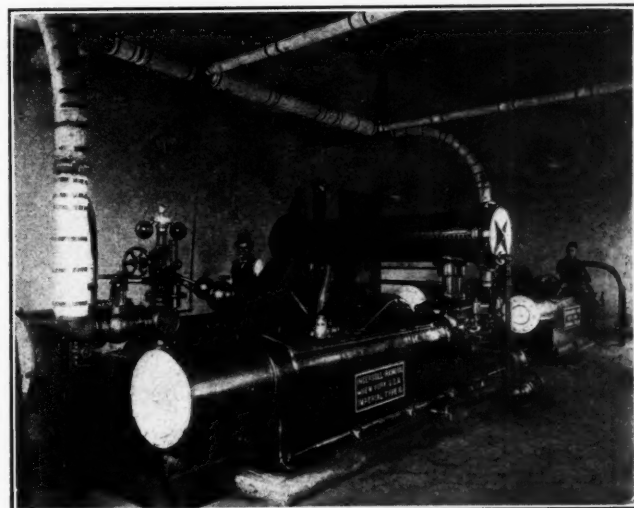
structure as an independent problem, and merely to place it near another building in the blind hope that a succession of such enterprises may produce an arrangement at once pleasing to the eye and adapted to convenient use. The success of such groups depends not so much upon the cost of the buildings or the promptness with which they were erected, as upon the adherence to a definite scheme of composition by which buildings of a similar style were assembled closely enough to one another and with sufficient unification of approaches and exposures to give an effect of common service.

### WATER WORKS OF THOMASVILLE, GA.

By J. A. EPPLY, Superintendent

THE city of Thomasville, Ga., with a population of 8,000 inhabitants, is supplied with water from one well, which is bored to the depth of 565 feet. The water stands in the well at a depth of 185 feet from the surface, which makes the use of an ordinary suction pump impossible, and the company decided that the only practical way to raise the water was by the use of the air lift.

The equipment in the pumping station which provides the air for the purpose of lifting the water from the well into the reservoir is shown in the illustration. The pumping plant is also supplied with one Knowles compound pump having a capacity of 600 gallons per minute, and one Smith-Vaile underwriters' pump having a capacity of 800 gallons per minute, used for fire purposes.



AIR COMPRESSOR PLANT

The standpipe system is used, and a valve is located at the standpipe, which is closed by hydraulic pressure by the operator at the pumping station in case of fire, and direct pressure is applied to the mains sufficient to fight all fires without the use of a fire engine.

The air lift is found to be an expensive way of pumping water. We find that it costs about one cent a thousand gallons for fuel for every 100 feet in height we lift it; the cost of coal being \$3.50 per ton, and our total lift being 300 feet.

All water supplied to consumers is metered, and it is owing to this that we are able to supply a city of this size from one well and in addition furnish a railroad with 1,500,000 gallons per month.

Water is sold at the rate of 15 cents per 1,000 gallons net, with the extremely low minimum rate of 25 cents per month.

The water works plant is operated in connection with the electric light plant, both of which are owned and operated by the city, and offer one illustration of successfully operated municipal plants. The service is first-class and is given at as low rates as possible. Both light and water plants show a cash balance in favor of the city, in addition to the street lighting and the use of 100 fire hydrants and the water supplied to county buildings and for twenty drinking fountains for man and beast, for which the department receives nothing.

## LIMITS TO SEWAGE PURIFICATION

How Much of Purification Should Be by Sewage Contributor  
and How Much by Water Consumer—Common  
Sense Conclusion Aimed at

By ALEXANDER POTTER

Address at Conference of Mahoning Valley Cities

In August last there was held at Warren, Ohio, a conference of the various towns in the Mahoning Valley, called by the State Board of Health, to consider the relation and responsibility of these towns in the matter of sewage disposal and water purification. The towns in the valley included Seabring, Alliance, Newton Falls, Warren, Niles, Girard, Youngstown and Struthers. There were about one hundred representatives present at the conference, and, while no definite action was taken, it is expected that further negotiations between the towns will be carried on in connection with the subject matter discussed. The following is an address, given practically in full, which was presented at this conference and deals with a subject the importance of which is coming to be realized more and more by sanitary engineers:

The present conference is one of the most important ever held to consider sanitary matters, because, so far as the speaker knows, cities which are polluting a stream utilized as a source of water supply, and the cities so using that stream as a source of supply, are, for the first time in the history of this country, asked to meet together to discuss and define their respective responsibilities in the premises and to plan some comprehensive line of action that will meet the approval of all.

There is no doubt that the city of Warren, for instance, is to-day, and has for some time been, wrongfully polluting the Mahoning River by the direct discharge of crude sewage into the river. This same thing applies to Seabring, Alliance, Niles, Girard, Youngstown and Struthers; but there is scarcely any less doubt that the sewage from these cities will still be contaminating the river after they establish sewage disposal plants, no matter what system of sewage disposal is adopted. True, the pollution will then be in a lessened degree, but still there will be contamination, the amount depending upon two factors: first, the character of the sewage disposal plant, and, second, the character of the care and management given the plant after construction. The danger of catching typhoid fever in Youngstown, for instance, if Warren and other cities above build sewage disposal plants, will not be eliminated; this danger will only be lessened. This fact must be kept constantly in mind in considering this matter in its true light. It is safe to assume that no system of sewage disposal likely to be adopted will give a greater efficiency than 80 per cent bacterial removal day in and day out, and I will endeavor to show that under the circumstances any attempt to secure a greater removal of bacteria is a waste of public money, because of other sources of contamination still remaining.

Let us assume for a moment the possibility of the city above purifying its sewage to a drinking-water standard, and even preventing the treated sewage from entering the river at all; the city below still has no assurance that its water supply is safe, because there are so many other polluting factors, impracticable and impossible to eliminate, such as the wastes and wash from farms, from manufactories, and from mines along the river's banks. Of course, if the public health could not be maintained without the complete purification of these wastes, as well as the cities' sewage, then what I am about to say falls to the ground, but this has not yet been proved.

If the time has not yet come, it most surely will come in the very near future, when all surface supplies of water subject to any contamination, defilement or even serious turbidity must be purified before being used, the extent of the purification depending, of course, upon the amount and character of the defiling influences. The purification of water is so much more an exact science than the purification of sewage, and the results

obtained therefrom give so much greater positive and direct returns for a given expenditure, that the expenditure of money on sewage disposal plants for the purpose of purifying water supplies is in most cases a misdirected expenditure of public money.

That the sanitary disposal of sewage and other wastes from cities and manufactories is essential and should be enforced throughout the country is so well established that it is not debatable, but we must approach the problem in its true light from a common-sense viewpoint. I am at one with those English experts, such as Rideal, Jones, Scott-Moncrieff, Lowcock, Martin, Ashton, Corbett and Hart, experts in sanitary science in England, who at a recent sanitary conference reached the conclusion that the sewage disposal problem is still unsettled; that the sludge problem is the most serious one confronting sewage disposal experts, and the chief result to be aimed at and obtained is the prevention of nuisances in streams. Why should we demand that manufactories purify their wastes as a protection to the health of the people below stream when the character of these wastes is such, in some instances, that they have saved cities from an outbreak of an epidemic by chemically counteracting and destroying the harmful bacteria in waters subject to typhoid and other contamination? That they should be compelled to cease polluting the river is unquestionably true, but not for the sake of the water supply below.

Let us take as a fundamental and basic principle that no town or factory or mine should be permitted to maintain a nuisance on its own premises or on the premises of its neighbor, and viewing the situation in this light, greater progress can be made. No city and no manufacturer enjoys being accused of maintaining a nuisance. When they are asked to do something for themselves they will spend money and can be justly compelled to spend money that would be hard or even unjust to drag from them purely for the benefit of their downstream, and perhaps more prosperous, neighbors, especially when they have so much evidence that the expenditure of money for that purpose is money wasted. If the State Boards of Health have no power to enforce the abatement of nuisances excepting on the basis of health, let us enlarge their powers to include the abatement of *all* nuisances.

When the idea of constructing a sewage disposal plant in the town above as a means of purifying the water of the city below is abandoned, we will arrive at a rational and logical solution of this vexed question, and we will be able to recommend simpler methods of sewage disposal than would otherwise be possible or practicable, and thus would be more likely to secure favorable action upon the proposition. We will then be able to build a practical sewage disposal plant capable of performing the object for which it was designed. It is common knowledge that most disposal plants in this country and abroad are not maintaining the high standard set by their designers, and it is also common knowledge that sewage disposal as a protection of public water supplies is a failure.

The expense of purifying the sewage of any town to such a degree as to positively insure the water supply of the town below against pollution from that town is prohibitive in a vast majority of cities throughout the United States, and because those in authority in some cities hold the view that sewage disposal is a prime essential to water purification, and not that the water supply itself should be purified, many rational and beneficial improvements are postponed.

There can be no question that sewage disposal and water supply are intimately co-related, but it is essential that we first reach some common-sense conclusion as to the percentage of purification to be effected in the sewage of any particular city, for until such a conclusion is reached it is impossible to determine even approximately the financial obligations on the part of one municipality when they undertake the purification of their sewage, for under certain aspects this problem may involve a complete reconstruction of not only the city's sewers, but also the house connections leading from the sewers to the houses. All this, notwithstanding the fact that at the time these sewers were originally constructed the advice of the ablest engineers in the country was sought and found.



The problem of sewage disposal is solved when we maintain a proper proportion between the amount of sewage discharged into and properly diffused throughout a body of water, and the ability of that body of water to absorb the sewage. Generally speaking, this condition will obtain by the discharge of one volume of crude sewage, or its equivalent in treated sewage, to fifty volumes of water. The method of sewage disposal which can most economically perform this service is the one that should be adopted; there is no one method applicable to every case.

## LEGAL MUNICIPAL DONATIONS

### Rights and Powers of Municipalities to Financially Assist Private Enterprises—Kinds Which May Be so Aided—Legislative Authority—Summary

By HOWARD C. LAKE of the New York City Bar

MUNICIPAL aid in the donation of funds and the subscription to capital stock as a means of promoting and encouraging certain private enterprises has been very common in our history and has been pretty generally sanctioned. It should be noted, however, that municipal aid has never been sanctioned unless the private enterprise was engaged in some public purpose.

Generally speaking, the Legislature has power to authorize municipal aid for public purposes. There are, however, some exceptions of a nature too involved for consideration in this brief article.

The most interesting question which we have to consider herein is: What constitutes a public enterprise or purpose? There have been many decisions by the courts and illustrations are to be found in many of the reported cases.

The question has naturally arisen most frequently in the case of railways. Unless there is some special statute, the general rule may safely be stated thus: The Legislature has power to confer upon a municipality the right to aid railway corporations, and necessary taxes may be levied to enable the payment of obligations thus incurred.

The case of Quincy against Cooke, decided by the Supreme Court of the United States over a quarter of a century ago, seems to be a leading authority. The Illinois Legislature enacted that certain statutes or acts of the City Council of Quincy between certain dates, ordering an election on the proposition to subscribe \$100,000 to the stock of a railway company, and the subscription of said stock, and all other acts of said Council in connection therewith were, by that enactment, legalized and confirmed. The Council had conformed to the vote of the citizens of Quincy at a special election and subscribed for the stock, but neither the election nor the subscription were authorized by law. After the statute was effective, negotiable coupon bonds were issued to the company by the city and the latter received its stock. Cooke became a holder in good faith of coupons detached from the bonds and brought suit. It was held that they were valid obligations of the city.

The general rule stated is in accord with decisions rendered in nearly all of the older States of the Union. So far as I have been able to find, the question has not arisen in such comparatively new jurisdictions as Idaho, Washington, the Dakotas and Oregon. Decisions rendered in Iowa, Wisconsin and Michigan are not in accord with the great weight of authority. These minority rulings are not, however, of sufficient general interest to consider here, although it is interesting to note that the United States Supreme Court has refused to follow the decisions of one of these three States upon this question.

Suppose the railroad which seeks municipal aid is located outside the city or village, but wholly or partly inside the State, has the Legislature the right to authorize aid? The question has been answered in the affirmative by the Federal courts as well as those of Missouri, Ohio, Minnesota, Kansas and Tennessee.

No vote by citizens or taxpayers of the municipality is needed to confer the power of granting aid or subscribing to the stock of railway companies.

The United States Supreme Court in 1880 concurred with the opinion of the Illinois Supreme Court that the State constitution, which provided that

The corporate authorities of counties, townships, school districts, cities, towns, and villages may be vested with power to assess and collect taxes for corporate purposes; such taxes to be uniform in respect to persons and property within the jurisdiction of the body imposing the same. And the General Assembly shall require that all the property within the limits of municipal corporations, belonging to individuals, shall be taxed for the payment of debts contracted under authority of law imposed a limitation on the power of the Legislature to authorize taxation by the municipal corporations or the political subdivisions of the State, and that a Congressional township is, by the Illinois laws, merely a corporation for school purposes. It seems, therefore, that school districts cannot be authorized to render municipal aid.

Territories are forbidden by Federal statutes from being authorized to render aid to railways, but Congress has power, directly or indirectly, to authorize municipal corporations in territories to grant aid to railway construction.

Even though a railway is already equipped and constructed, it has been held in California a fit subject for municipal aid.

It has been held in New York that, although the Legislature cannot compel a municipal corporation to subscribe for railroad stock and to issue its bonds in payment therefor, yet when, under a mandatory act, the municipality has voluntarily and without the compulsion of judicial process subscribed for and taken the stock and issued its bonds, the latter are not invalidated by the compulsory character of the act; it operates as an authority and permission to do the acts, and, having been done, they will be considered as having been done voluntarily.

With regard to institutional aid by a municipality, I shall consider charitable institutions first. It has been settled in New York by the highest court (a decision which would doubtless be followed) that these are proper subjects for municipal aid and that, in the absence of express prohibitions in the State constitution, the Legislature may authorize aid.

The case referred to (*People against Fitch*) held that the New York Institution for the Blind, an institution under private control, but organized for the special education of the blind, is to be regarded as a charitable institution so far as it clothes, maintains and educates indigent pupils at public expense, or by donations from individuals, and that the provision of the State constitution that the Legislature shall provide for the maintenance and support of a system of free public schools, related only to the public or common schools and had no application to appropriations made by the State to an institution for the education of the blind, wholly or partly under private control. County appropriations for clothing indigent pupils were approved. The opinion is long and learned, as is that of the one dissenting judge.

In Pennsylvania there is an express provision of the constitution against the granting of aid to "any corporation, association, institution or individual," and an act enabling a private incorporated hospital to make requisitions upon a county for the payment of its charges for the support of patients under its treatment, even though they be paupers, was held an appropriation of money by the county to the corporation and prohibited by the constitution.

Learned institutions governed by private individuals have been declared by the weight of authority as private institutions, but this question was otherwise decided when it arose many years ago in the granting of State aid to Amherst College of Agriculture. The statute was held constitutional and the case was followed 30 years after by the Massachusetts Supreme Court in an opinion, which reads as follows:

"The establishment of a textile school in a large manufacturing city may be of such special and direct benefit to the city as to warrant the appropriation by it, under legislative sanction, of a sum of money in aid of the school, although persons from elsewhere may be members or trustees of the corporation, or may be admitted to be taught therein. It is in aid of manufac-

tures which the constitution (Part 2, c5, sect. 2) enjoins the Legislature to encourage, and the statute (St. 1895, c 475) falls within the doctrine of *Merrick v. Amherst* and is constitutional."

The Amherst institution was subject to public control, and this was held a basis for municipal aid.

Another Massachusetts decision should be noted. It was there held that a town had no authority to raise by taxation and appropriate money to support a school, as a public school, which is founded by a charitable bequest that vests the superintendence of it in trustees, who, though a majority of them be chosen by the inhabitants of the town, yet are limited to members of a certain religious denomination.

Is the rebuilding of a city burned by a fire a public purpose? It has been held not, and the Legislature cannot empower such a municipality to aid individuals or corporations whose property has been destroyed. The leading case on this point is doubtless *John Lowell against the City of Boston*, which was a proceeding to restrain the city from issuing its bonds for the purpose of raising a fund to be appropriated to the object of rendering aid, by way of loans, in rebuilding upon that portion of the city which was burned over in the great fire of 1872. A special statute was passed by the Massachusetts Legislature authorizing the city to issue bonds and lend the proceeds on mortgage to the owners of land. This was held unconstitutional. The question, as the State Supreme Court said, was not of municipal authority, but legislative power. The conclusion of the court is thus stated, after a lengthy review of the facts and law: "The expenditure authorized by this statute, being for private and not for public objects, in a legal sense, it exceeds the constitutional power of the Legislature; and the city cannot lawfully issue the bonds for the purposes of the act." A decision along the same general lines has also been rendered in South Carolina.

A private enterprise which is not deemed worthy of municipal aid is the securing of water power by the improvement of streams. Exclusive control over the use of the power thus secured being held by a person improving the stream, it has been decided that this is a private enterprise which does not warrant municipal encouragement. An illustration is found in the case of *Ottawa City against Carey*, decided by the United States Court in one of the Illinois districts. It was there held that municipal corporations, being created only to aid the State government in the legislation and administration of local affairs, possess only such powers as are expressly granted, or may be implied because essential to carry into effect those which are expressly granted and that, therefore, a municipal corporation authorized by its charter "to borrow money on the credit of the city and issue bonds therefor," and by special act of the Legislature to borrow a named sum "to be expended in developing the natural advantages of the city for manufacturing purposes" is not thereby authorized to issue bonds by way of donation to an individual to aid in developing the water power of the city, and is not liable to an action upon such bonds by one who takes them without notice of the facts.

In New York it has been held that a legislative act purporting to authorize a village to subscribe for and take stock of a private corporation formed for the object of constructing a water privilege on the Delaware river, to issue municipal bonds to raise money to pay for such stock, and to collect by taxation the money to pay said bond, was void and the bonds issued thereunder invalid.

The West Virginia Legislature, shortly after the Civil War, authorized the city of Parkersburg to issue its bonds for the purpose of lending the same to persons engaged in manufacturing. The Supreme Court of the United States held the act invalid and the bonds issued under it, as against the city, void because the necessary amount to pay them and the interest thereon was to be raised by taxation, which, not being a public object, the Constitution of the State did not authorize, and the Legislature had no power to pass the act. The rule has been firmly established that the establishment of private factories is not a "public purpose."

Municipal appropriations in aid of agriculture, especially in

the cultivation of land through the distribution of seeds, have been upheld in the West, although one State in that section has held this to be a private purpose.

Canals and turnpikes and the improvement of the navigation of a river have also been held appropriate objects of municipal aid under authorization of the Legislature.

To summarize the decisions it may be broadly stated that railways, institutions of learning and charity, aid to agriculture, and the improvement of canals, turnpikes, as well as the navigation of rivers, have been generally held appropriate subjects of municipal aid, while the rebuilding of burned towns or cities, the encouragement of private manufacture and the securing of water powers have not.

## SMALL SALT WATER FIRE SYSTEM

By C. B. IRVINE

VENICE, the pleasure place of Santa Monica Bay, Cal., is protected from destruction by fire by means of a salt water high-pressure system. The greater part of this equipment was installed when Venice was built, four years ago. It has proven so successful in its operation that extensions of the service have been made from time to time, and nearby cities on salt water have seriously considered following the example set by the Venetians for the protection of their property.

The mains are of cast iron pipe, 8 inches in diameter and weighing 54 pounds to the foot. The laterals range from 4 to 6 inches in diameter. The mains and laterals were laid practically on a level, there being no perceptible grade. The salt water intake extends 300 feet into the ocean, being embedded in concrete and opening just below low tide line, six feet from the bed of the ocean. Although the system was installed more than four years ago, there have been no breaks or apparent deterioration through the action of the salt water on the iron pipes, and not one cent has been expended for repairs of any description.



TEST OF HIGH PRESSURE SERVICE, VENICE, CAL.

A continual pressure of 60 pounds is maintained by two underwriters' pumps, which have a capacity of 750 gallons per minute. One pump is kept going all the time. Only a great conflagration would require both, when a maximum pressure of 250 pounds would be available. With a  $1\frac{1}{8}$ -inch Gortner nozzle it is possible to throw a stream from the ground over any three-story building on Windward avenue, the principal street of the resort city. After witnessing a recent demonstration Fire Chief Walter Lips, of the Los Angeles department, said that he estimated that the  $1\frac{1}{8}$ -inch smooth-bore nozzle under a pressure of 70 pounds threw 307 gallons per minute. Three streams were thrown simultaneously—two under 70 pounds pressure and the third showing a pressure of 40 pounds and an outflow of 233 gallons per minute. Three lines siamesed into a  $1\frac{1}{2}$ -inch play pipe under a 60-pound pressure maintained a flow of 708 gallons per minute, the pressure at the pumps at the same time increasing by 10 pounds.



|   | Tar Compounds | Asphaltic Compounds |
|---|---------------|---------------------|
| Specific gravity.....                         |               |                     |
| Water soluble material (organic).....         | per cent.     | per cent.           |
| (inorganic).....                              | "             | "                   |
| Free carbon.....                              | "             | "                   |
| Ash.....                                      | "             | "                   |
| Solubility in cold carbon tetra-chloride..... | "             | "                   |
| Fixed carbon.....                             | per cent.     | "                   |
| Paraffine.....                                | "             | "                   |
| Melting point of normal material.....         | degrees       | degrees             |
| Evaporation 5 hours at 170° C.....            | per cent.     | per cent.           |
| Melting point of residue.....                 | degrees       | degrees             |
| Penetration of residue at 4° C.....           | "             | "                   |
| 25° C.....                                    | "             | "                   |
| Evaporation 5 hours at 205° C.....            | "             | per cent.           |
| Melting point of residue.....                 | "             | degrees             |
| Penetration of residue at 4° C.....           | "             | "                   |
| 25° C.....                                    | "             | "                   |
| Solubility in 88° B naptha.....               | "             | per cent.           |
| Character of solution (oily or sticky).....   | "             | "                   |
| Distillation.....                             |               |                     |
| Up to 105° C.....                             | per cent.     | "                   |
| 105° C. to 170° C.....                        | "             | "                   |
| 170° C. to 225° C.....                        | "             | "                   |
| 225° C. to 270° C.....                        | "             | "                   |
| 270° C. to 300° C.....                        | "             | "                   |
| Viscosity 100° C.....                         |               |                     |
| Engler viscosimeter.....                      | seconds       | seconds             |
| Lunge tar tester.....                         | "             | "                   |
| Penetrometer.....                             | "             | "                   |
| New York Testing Laboratory viscosimeter..... | "             | "                   |
| Viscosity 25° C.....                          |               |                     |
| Engler viscosimeter.....                      | seconds       | seconds             |
| Lunge tar tester.....                         | "             | "                   |
| Penetrometer.....                             | "             | "                   |
| New York Testing Laboratory viscosimeter..... | "             | "                   |

## CONSTRUCTION DATA

|   |                    |
|---|--------------------|
| Amount of bituminous material used per sq. yd. (in gals.):                  |                    |
| First course.....   | Second course..... |
| Surface coat.....   | Total.....         |
| Temperature to which material was heated:                                   |                    |
| First course.....   | Second course..... |
| Surface coat.....   |                    |
| Temperature of air during use of bituminous material:                       |                    |
| Maximum.....  | Minimum.....       |
| Mean.....   |                    |
| Date of beginning of use of bituminous material.....                        |                    |
| Date of completion.....   |                    |
| Average rate of progress of using bituminous material (per day in gallons): |                    |
| First course.....   | Second course..... |
| Surface coat.....   |                    |
| General weather conditions during use of material.....                      |                    |
| Cost, f. o. b. cars, of bituminous materials (per gallon).....              |                    |
| Freight on bituminous materials (per gallon).....                           |                    |
| Cost of loading and hauling bituminous materials (per gallon).....          |                    |
| Total cost delivered on road of bituminous materials (per gallon).....      |                    |
| Cost of heating.....  |                    |
| Cost of spreading or mixing.....  |                    |
| First course.....   | Second course..... |
| Surface coat.....   |                    |
| Total cost in place of bituminous materials (per sq. yd.).....              |                    |
| Contract price in place of bituminous materials (per sq. yd.).....          |                    |

## METAL SURFACING

|   | Tel-<br>ford or<br>Other<br>Base | 1st<br>Course | 2d<br>Course | Bind-<br>er or<br>Grit | To-<br>tals |
|---|----------------------------------|---------------|--------------|------------------------|-------------|
| Name (geological if possible) of material used.....                   |                                  |               |              |                        |             |
| Abrasion test of material used (French coefficient of wear).....      |                                  |               |              |                        |             |
| Absorption test of material used.....                                 |                                  |               |              |                        |             |
| Fracture (cubical or scaly) of material used.....                     |                                  |               |              |                        |             |
| Crushing strength of material used (lbs. per sq. in.).....            |                                  |               |              |                        |             |
| Thickness after rolling of material used.....                         |                                  |               |              |                        |             |
| Size (max. and min. screen openings) of material used.....            |                                  |               |              |                        |             |
| Amount (in tons, or cu. yds.) of material used.....                   |                                  |               |              |                        |             |
| Cost, f. o. b. cars, of material used, per ton or cu. yd.....         |                                  |               |              |                        |             |
| Freight on material used, per ton or cu. yd.....                      |                                  |               |              |                        |             |
| Cost of loading and hauling material used, per ton or cu. yd.....     |                                  |               |              |                        |             |
| Total cost delivered on road of material used, per ton or cu. yd..... |                                  |               |              |                        |             |
| Total cost delivered on road of material used, per sq. yd.....        |                                  |               |              |                        |             |
| Cost of scarifying and shaping old surface, per sq. yd.....           |                                  |               |              |                        |             |
| Cost of laying or spreading of material used, per sq. yd.....         |                                  |               |              |                        |             |
| Cost of watering and rolling of material used, per sq. yd.....        |                                  |               |              |                        |             |
| Total cost in place of material used, per sq. yd.....                 |                                  |               |              |                        |             |
| Contract price in place of material used, per sq. yd.....             |                                  |               |              |                        |             |

In connection with this blank the committee has drawn up a statement of analyses and methods of testing bituminous materials, which it suggests to be used in filling out the above blank. We recommend that these be accepted as the standard by all road commissioners, city engineers and others in charge of road construction in which bituminous materials are used. We consider that the standing of the committee and of the society it represents warrants this.

## Analyses and Methods of Testing Bituminous Materials

**Water-Soluble Materials.**—Boil gently 2 grams of material with 25 c.c. of distilled water for one hour. Filter and wash with 25 c.c. of boiling water. Evaporate filtrate in weighed dish to dryness and constant weight at 105 deg. C. Weight residue. Ignite residue and weigh again, giving weight of inorganic matter plus weight of crucible. Weight No. 2 minus weight No. 3 gives weight of organic matter.

**Specific Gravity.**—Use some standard form of pycnometer. Material and distilled water must have a temperature of 25 deg. C. For semi-solid and solid materials use Sommer's Pycnometer.

**Free Carbon.**—The free carbon shall be determined by dissolving for 15 hours, 2 grams of the compound in 100 c.c. of cold carbon bisulphide, filtering the solution through a weighed Gooch crucible, fitted with an asbestos pad, drying to constant weight, and weighing the insoluble residue; then igniting crucible until all carbon is burned off, weighing the residue (ash). The difference between the second and third weights is "Free Carbon." The difference between the first and third is ash, which should be noted.

**Fixed Carbon.**—About one gram of the compound is weighed into a platinum crucible one and one-eighth to one and one-half inches high. The crucible with the lid on is heated, first gently, and then until no more smoke and flame issues between the crucible and the lid. It is then heated three and one-half minutes in the full heat of the burner; then cooled and weighed. The crucible lid is then removed and the crucible and contents allowed to remain in the full heat of the burner until the carbon is burned off, and then weighed again. The difference between these two weights is the Fixed Carbon.

**Evaporation.**—Twenty grams of compound are heated in a flat-bottomed dish, two and one-half inches in diameter and about one inch high, for a total of five hours in three successive periods of three, one and one hours, respectively, in an oven, the interior of which is maintained at a uniform and constant temperature of

170 deg. C. This oven is to be controlled by any thermo regulator, controlling within two degrees, and is to have its full temperature before the compound is introduced. The dish must be level. Remove dish from oven and stir contents thoroughly for one minute between successive periods.

**Penetration of Residue from Evaporation Test.**—The penetration shall be measured by a standard machine using 100 grams load and No. 2 needle. Use a flat-bottomed glass dish seven-eighths of an inch in diameter and one and one-half inches in height. Fill dish with top with material and allow same to stand at room temperature for one-half hour. Immerse in water bath, covering material for one hour. Immerse needle to be used for five minutes in same bath. Test at once, making three determinations. The recorded penetration will be the average value. Temperature 4 deg. C. and 25 deg. C.

(Note): Residue must be melted at lowest possible temperature and thoroughly mixed by stirring.

**Melting Point of Residue from Evaporation.**—The material whose melting point is to be determined, is melted and poured into a mold that will make a one-half inch cube. A No. 10 gauge wire about 6 inches to 8 inches long is bent at right angles for a length of ¾ inch at one end and the center of the cube is placed on this end so that one of the diagonals of the vertical face of the cube is parallel to the long part of the wire. Take a bottle of a size about 2 inches in diameter and 4 inches high and place a piece of white paper in the bottom of it. Pass the long part of the wire through the cork of the bottle so that the lower edge of the cube will be within one inch of the bottom of the bottle. Also put a thermometer through the cork so that the bulb is opposite the cube. Place the bottle in a water or oil bath and raise the temperature of the bath at a rate of 3 to 6 deg. C. a minute. The melting point of the material is the temperature of the thermometer inside the bottle at the time that the material touches the paper in the bottom of the bottle.

## Distillation.—

Up to 105 deg. C.

From 105 deg. to 170 deg. C.

From 170 deg. to 225 deg. C.

From 225 deg. to 270 deg. C.

From 270 deg. to 300 deg. C.

Seven hundred grams of the compound are weighed into a retort (E. & A. four points No. 4521), whose top is fitted with a tee as close as possible to the retort, and a condenser pipe 24 inches to 36 inches long; the upper branch of the tee is used for the insertion of a thermometer, the top of whose bulb is placed immediately below the main outlet of the tee.

**Viscosity or Consistency.**—Temperatures at which viscosities will be determined, are 100 deg. C. and 25 deg. C.

Penetrometer to be used in accordance with standard method on materials solid at above temperatures. Of materials on which at the above temperature, the penetrometer cannot be used, the viscosity shall be determined by one of the following instruments: Engler Viscosimeter.

Lunge Tar Tester.

New York Testing Laboratory Viscosimeter.

## Compounds Prepared from Petroleum or Natural Asphalt Pitches

**Melting Point of Solid Asphalts.**—Same method as for residue from evaporation of tars.

**Water-Soluble Materials.**—Same method as for tars.

**Specific Gravity.**—Same method as for tars.

**Free Carbon.**—Same method as for tars.

**Material Soluble in Cold Carbon-Tetrachloride.**—Same method as for Free Carbon, except carbon-tetrachloride is used as a solvent instead of carbon-bisulphide.

**Fixed Carbon.**—Same method as for tars.

**Paraffine.**—One hundred grams or less of the compound is distilled rapidly in a retort to dry coke.

Five grams of the well mixed distillate is treated in a two-ounce flask with 25 c.c. Squibbs absolute ether; after mixing thoroughly, 25 c.c. Squibbs absolute alcohol is added and the flask packed closely in a freezing mixture of finely crushed ice and salt for at least 30 minutes. Filter the precipitate quickly by means of a suction pump, using a No. 575 C. S. & S. 9 c.m. hardened filter paper. Rinse and wash the flask and precipitate (with 1 to 1 Squibbs alcohol and ether mixture cooled to -17 deg. C.) until free from oil (50 c.c. of washing solution is usually sufficient). When sucked dry remove paper, transfer waxy precipitate to small glass dish, evaporate on steam bath and weigh paraffine remaining on dish.

**Calculation.**—Weight of paraffine divided by weight of distillate taken and multiplied by per cent of total distillate used from original sample, equals per cent of paraffine.

**Evaporation Test No. 1.**—Same method as for tars.

**Penetration of Residue from Evaporation Test No. 1.**—Same method as for similar residue of tars.

**Melting Point of Residue from Evaporation Test No. 1.**—Same method as for similar residue of tars.

**Solubility in 88 deg. Baumé Naphtha.**—Two grams of compound are placed in 4 ounces oil sample bottle made up to 100 c.c. with 88 deg. B. naphtha, having a boiling point between 40 deg. C. and 55 deg. C., the whole well shaken until compound is broken up. The bottle is then centrifugalized for 10 minutes, 50 c.c. are withdrawn into a weighed flask, the naphtha distilled by a water bath and the residue weighed. Another 10 c.c. of the naphtha solution is run over ¾-inch Petri glass and allowed to evaporate for 24 hours at room temperature. Note character of residue, i.e., sticky or oily.

**Viscosity or Consistency.**—Same as for tars.

**Evaporation Test No. 2.**—Same method as for tars, except even temperature shall be 205 deg. C.

**Penetration of Residue from Evaporation Test No. 2.**—Same method as for tars.

**Melting Point of Residue from Evaporation Test No. 2.**—Same method as for tars.



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OCTOBER 6, 1909.

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## Municipal Co-Operation for Improvements

It is becoming more and more evident in all parts of the country that, in carrying out certain classes of public improvements, it is desirable from several points of view that such improvements be organized and conducted on the basis of natural rather than political sub-divisions. In some cases the units into which the improvements naturally divide themselves are sub-divisions of a city or other political unit, and then the problem is comparatively easy of solution. In other cases, however, the unit of area which topographical or other physical conditions indicate as most suitable includes the whole or sections of several such political districts, and sometimes these are not all even in the same State.

Probably the largest combination of cities and other municipal units into one district for the purpose of public improvements is that known as the Metropolitan District, of which Boston is the center. Thirty-nine municipalities are now included in this district. Conditions there are unusually favorable for such a combination, since from the very beginning of settlement Boston was made a center from which highways radiate in all directions; a large part of the drainage of the district flows directly into Boston Harbor, and Boston also occupies the somewhat unique position of being at the same time the chief commercial city and the political center or State capital. These conditions have been recognized by the State Legislature in the organization of the Metropolitan District and the appointment of a Water and Sewer Board and a Metropolitan Park Commission, both in more or less complete control throughout the district, and recently of a Metropolitan Improvement Commission.

This last was appointed in 1907 and submitted its report a few weeks ago. This commission consisted of Benjamin N. Johnson, Henry B. Day, Desmond Fitzgerald and Robert S. Peabody. Their report is typical of the work done by the several Metropolitan commissions in its completeness, in the high-class of talent engaged upon its preparation, and in the intelligence and care which is shown at all points and which we would think would cause it to have more weight than is the case with too many reports of commissions. One of the recommendations of this commission is that the duties of the Metropolitan Water and Sewer Board, those of the Metropolitan Park Commission and other duties suggested by the report (which would consist largely of control of the Metropolitan highways) be transferred to one consolidated board; as an adjunct to which they recommend the creation of a Metropolitan District Council, composed of the responsible executive officials of the various metropolitan communities.

While the report of this commission, which contains 318 pages and numerous maps, confines itself solely to the conditions in and recommendations for the Metropolitan District, there is much in it of universal application, this being especially true of the principles which are given from time to time in the report as having guided the commission in its various plans and conclusions. To any one interested in the larger features of city planning the report will prove of special value, and we recommend its careful inspection by all such. Some of the major points of more or less general application are abstracted in an article on another page.

## Bituminous Road Materials

SINCE pages 517 and 518 went to press we have received additional information from Prof. Crosby concerning the work of his committee. The forms presented on those pages, he states, are to be supplemented by others for reporting on the results obtained in the work described in the first form, probably after next winter has demonstrated the effect of freezing. The committee also hopes to make personal inspections of many of the roads reported on; and by these methods to offset the lack of funds for actual experiment. Most of the members are themselves carrying on experimental work for their respective states (Maryland, New York, New Hampshire and Rhode Island). We are assured that no member of the committee has any connection whatever with any producing interest.

## ANALYZING CITY WASTES

### Methods Employed by Ohio State Board of Health— Obtaining Samples of Garbage, Ashes and Rubbish—Methods of Analysis

THE Ohio State Board of Health has about completed preparations for a thorough investigation of city wastes disposal and street cleaning, and the methods decided upon for the collection of samples of waste and for analysing them were described by the Acting Chief Engineer, Paul Hansen, in the Quarterly Bulletin of the Board. As these operations present several difficulties and no standard methods have ever been developed, we believe the description of these methods, which is given below, will be of considerable interest.

Arrangements have been made with the local authorities of the cities of Cleveland, Cincinnati, Columbus, Dayton, Youngstown, Steubenville and Canton, for maintaining regular records of the waste materials collected; and while in Zanesville, Mansfield and Marion the methods of collection will not permit of the maintenance of accurate records, yet the local authorities have signified their willingness to be of assistance in any way possible.

The collection of samples has been given considerable thought owing to the difficulty of obtaining a sample that will be truly representative of an entire day's collection. This difficulty is especially great in connection with garbage. It is believed, however, that a method has been found which will prove entirely satisfactory, but at any rate the method will be adequately tested by collecting duplicate samples. The method consists in selecting from each load of garbage, after it has been dumped and thereby partially mixed, a number of shovelfuls from various parts of the heap, the same amount being taken from each load. These portions are placed as collected upon a specially constructed mixing platform. This platform is so arranged that the excess of water is permitted to drain into a suitable receptacle placed underneath. The portions are then finely chopped by means of sharpened shovels until there remains no particle larger than one-half inch in average diameter. At the end of the day's run all of the portions of drained and chopped garbage are thoroughly mixed together and quartered down until a sample of suitable size for shipment to the laboratory is obtained. Such a sample usually has a weight of about 14 pounds, and is placed in a two-gallon shipping jar, which in turn is enclosed in a strong wooden box. In order that the sample of garbage may contain the correct amount of moisture, the liquor which has drained from the mixing platform is carefully weighed and a portion thereof having the same ratio to the total liquor as the final sample obtained by quartering has to the total sample, is added to the jar. It has been found through experience that precaution must be taken against fermentation, as this is liable to burst the jars. One accident due to such bursting has already occurred. The method of overcoming the difficulty now employed is to replace the air-tight glass stopper of the shipping jar by a piece of strong cotton cloth and to add about 50 c.c. of chloroform to the sample to prevent bacterial activity. Samples shipped to the laboratory prepared in this way have shown practically no change.

The sampling of ashes is comparatively simple, it being merely necessary to select several shovelfuls from each load, and at the end of the day mix and quarter the total sample until a sample sufficiently small is obtained for analysis. A portion of the ash analysis must be performed in the field. This consists of placing about thirty pounds of ashes in a sieve having a  $\frac{3}{8}$ -inch mesh. These sieves, or ash separators, as they are called, were especially constructed to prevent the escape of dust and fine ash. The portion of the sample that passes the sieve is classed as "fine ash." That which remains upon the screen is carefully separated by hand-picking into coke and unburned coal on the one hand, and ash clinker and inert matter on the other. The fine ash, cinders, clinkers and inert matter are considered as having no value as fuel.

The sampling and analysis of rubbish offers considerable difficulty, but it is believed that the best results may be obtained by separating whole loads, and that the average of a number of such analyses will give fairly representative results. The objection to taking portions from every load delivered during the day's run lies in the fact that rubbish contains many large articles which would preclude the possibility of obtaining a fair sample in this manner. In making the separation a classification of material is used, which is intended to display, as far as possible, the valuable ingredients. This classification includes the following items: Ashes, paper, rags, wood, tins, iron, other metals, whole bottles, broken glass and crockery, leather, bones, garbage, and dust and dirt. No samples of rubbish will be sent to the laboratory unless it is desired to make the analysis of some particular ingredient.

In deciding what analytical determinations should be made in the laboratory, an effort was made to select such as will give an indication of the value of the substance for the various purposes for which it might be used. In the case of garbage, the determinations made are as follows: Moisture, ash, combustible matter, calorific value, ether soluble fats, phosphoric acid, nitrogen and potash.

The determination of moisture in garbage must be made by a special method. After the sample has been received in the laboratory it is again thoroughly mixed and chopped finer, if necessary. It is then quartered down until a sample of about two pounds in weight is obtained. In quartering down the same precautions are observed for preserving the proper amount of moisture as in the collection of samples in the field, only on a smaller scale. The garbage is then placed on a water bath and permitted to dry, which usually occupies several days. The drying is completed in an oven heated to a temperature slightly above that of boiling water. The loss of weight is then ascertained and suitable computations made to determine the percentage of moisture. The dried sample is ground fine in a heavy iron grinder and is preserved in glass stoppered bottles. The garbage in the dried condition is brown in color, slightly greasy in appearance, and has a not disagreeable odor, somewhat resembling coffee grounds. This dried portion is used for all other analytical determinations.

In the case of the other laboratory determinations, no effort was made to develop any new methods, as it was considered much wiser to adhere to methods already established and known as the "Official Methods of the Association of Official Agricultural Chemists." In a few instances it has been necessary to slightly modify these methods to make them more applicable to the substances dealt with. The calorimetric determinations will also be made according to standard methods, but it is believed that the ordinary form of recording results and, to some extent, laboratory technique, has been improved upon. It was believed that for scientific work of this character an apparatus capable of giving most accurate results should be employed, and, accordingly, the Dinsmore-Atwater bomb calorimeter, constructed with a gold lining to withstand the action of acids in the garbage, was selected. The apparatus is an exceedingly delicate instrument and is designed to produce the best possible results.

Determinations for all constituents are expressed as percentages of wet garbage, and calorific value is expressed in British Thermal Units.

In the case of ashes, determinations for moisture and calorific value only are made in the laboratory.

All analytical data, data relative to quantities of material collected and other information will be recorded on suitable forms, so that they may be studied and digested as the investigation progresses. When it is felt that a sufficient familiarity with the problem of city wastes disposal and street cleaning has been attained, it is proposed to supplement the experience gained in Ohio by visits to various cities in other parts of the country which have shown special skill or ingenuity in the solution of their local problems. It is believed that such visits will prove exceedingly instructive and be suggestive of new lines of work.



## NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest, Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Police and Fire Items—Government and Finance

## ROADS AND PAVEMENTS

## Bricks to Be Relaid in Cuts Promptly

Akron, O.—Service Director Mahoney has been instructed to see that all repairs to openings in brick pavements be made immediately when the trench is filled. Instead of filling in with dirt only and allowing considerable time to elapse before the brick are laid by the city gang, the work will be completed, paving and all, in one job. The old condition of things was responsible for many punctured automobile tires.

## Complaints of Quality of Wood Blocks

Atlanta, Ga.—R. S. Manley, Secretary and Manager of the Gulfport Creosoting Company, Gulfport, Miss., has sent a letter to the Street Committee of Council declaring that the wood blocks now being delivered to the city for the paving of Decatur street and Madison avenue are not in accordance with the specifications. To be specific, he makes these charges: That only a small percentage of the blocks are 90 per cent heart; that a large percentage of the blocks are made of loblolly pine, short-leaf pine and some long-leaf pine; that the blocks are poorly manufactured; that, judging from the percentage of the blocks which will not sink in water, and by the fact that the inside of many blocks shows no penetration deeper than a half inch, the amount of oil injected is nearer fourteen pounds to the cubic foot than the twenty pounds required by the specifications, and that many blocks are badly warped and checked from improper treating methods.

## Puzzling Street Bids

Cincinnati, O.—Because of the difference in the bids received for the granite paving of McLean avenue and bids for the granite paving of Front street, President Laidlaw, of the Board of Public Service, announced that he had summoned the contractors before the Board to explain to the "Board and the public" why there was a difference. The contract for McLean avenue was awarded to Kirchner at the lowest figure ever received in Cincinnati for granite paving. It is known that there was a bitter fight on between contractors for McLean avenue. Since then it is said that the granite quarries have advanced the price of granite blocks and that the cost of labor is greater.

## Contractors Damage Roads

Cleveland, O.—Contractors hauling heavy loads of stone over county roads behind traction engines are causing damage to the roads extending into the hundreds of dollars. Unless something is done at once, trustees of three townships have reported to the Commissioners, portions of highways only recently completely will have to be repaved. It is said in the complaints that culverts have been broken down and that the brick has been so crushed that the road is ruined in spots. County Legal Adviser Fielder Sanders has been asked to submit a statement of the law under which the contractors can be reached.

## Contractors Too Slow

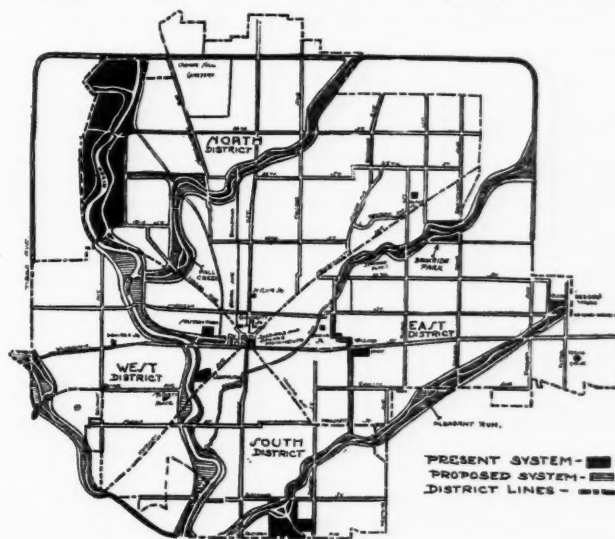
Dallas, Tex.—Bids for grading and gravelling certain roads of Dallas County were recently rejected by County Engineer Jack Witt because the contractors wanted 200 days in which to complete the work. The prices were satisfactory, but the authorities believe the work can be done quicker by day labor and will accordingly undertake it themselves.

## To Measure Pennsylvania Roads

Harrisburg, Pa.—In accordance with an act of the last Legislature, the Boards of Town Supervisors have been instructed to measure all the highways under their jurisdiction. The measurements will be made either by the use of the cyclometer or otherwise and reported to the State Highway Commissioner, Joseph W. Hunter.

## Indianapolis Boulevard Plans Completed

Indianapolis, Ind.—Nearly all of the details of the proposed improvements which will give Indianapolis one of the most beautiful and complete outlay of boulevards and parks of any city in the United States have been decided on. The plans embrace a boulevard system completely encircling the city and uniting all of the parks, with cross-



PARKS AND BOULEVARDS, INDIANAPOLIS, IND.

town drives in several places. Both sides of Fall Creek, from White River to Thirty-eighth street, are to become broad, smooth boulevards. Running southward from Fall Creek the system is to continue along both banks of White River to Southern avenue and Garfield Park, with a plaza connecting the White River boulevard with the State House. Another drive along Pleasant Run will unite Garfield Park with the Ellenberger woods in Irvington and then northward to Thirty-eighth street and Fall Creek. Other drives will connect Brookside Park, Spades Park, Highland Square and Willard Park. On the southwest will be a drive connecting Southern avenue with West Washington street at Tibbs avenue. Although the magnitude of the plans is immense, the Park Board has gone about the work systematically and will push the work to completion.

## Wheel Tax at Kendallville

Kendallville, Ind.—The City Council has passed an ordinance requiring every vehicle used upon the streets for the transportation of passengers to pay a high license. Automobiles are charged \$15, and \$5 is charged for coaches, hacks and other vehicles per year. The proceeds of the tax will be used for paving streets.

## More Stringent Regulations for London Street Traffic

London, Eng.—An act of Parliament has been passed for the better regulation of traffic in the streets of London. It enables the Mayor and Aldermen, with the approval of the Home Secretary, to make regulations with respect to the route to be taken by all vehicles, or any particular class or description of vehicles, or conditionally prohibit either generally or during particular hours the passing of such vehicles along the street. This power, however, may not be exercised till the matter has been made the subject of a public inquiry. Regulations may be made with regard to the line to be kept by persons riding or driving or conducting any animal or vehicle; the use of streets by costermongers, street hawkers and itinerant traders, with power to prohibit the use of certain streets by these merchants; the loading and unloading of coal, coke and beer barrels, and the limitation of the work to certain specified hours. Another section prohibits the driving of cattle through the streets between 8 A. M. and 8 P. M.

### City Completes First Paving Job

Columbus, O.—Columbus has just completed its first job of improving a street directly without letting the contract to a private bidder. The street improved by the city itself is Eleventh avenue from High to Neil street, and therein the comparatively new city asphalt repair plant was given its first rigid test. As a matter of experiment the city got the consent of the property owners to allow it to do the improvement directly with the asphalt repair plant. It is thought that the cost was much less than if the contract had been let to a private bidder. Superintendent W. W. Horn declares that this work will constitute an excellent test for California asphalt, which was used in Eleventh avenue, with a slight admixture of Bermudez.

### Mapping Out County Road System

Hutchinson, Kan.—County Engineer W. B. Harris is engaged in making a large road map of Reno County from which, when completed, he will plan out the various county roads which are to be established as main highways. Three classes of roads are to be established in the county—county, township and local roads. Each township board will designate the roads within each township, but after their reports are made to the Engineer and charted on the large map, he will arrange the county roads so they will run uniform. There will be two or three of these main county roads running through each township, in each direction, the object being to make them the main thoroughfares between the various towns. These will be maintained at a uniform width and will be kept in the best of condition. Each township will do its own road work, but all under the general supervision of the County Engineer. The township roads will not be as wide as the county roads, being secondary roads along the section lines, leading off from the main county roads. The local roads will branch off from the township roads to individual farms, and along half section lines. In the past each township has taken care of the roads without any general supervision from the county and no attention has been paid to keeping up main highways through the townships. Hereafter these will be given particular attention by the County Engineer. Mr. Harris is now preparing a separate road map for each township, which will be sent to the township boards, and on which the road work will be charted.

### Mayor on Street Job

Paulsboro, N. J.—There was a sharp clash over the work of improving Delaware street between Mayor Adamson and Dr. M. J. Doolittle, a member of Council, whom the Mayor appointed Street Supervisor some time ago. Both are now candidates for Mayor, and Mayor Adamson discharged the Supervisor after a tilt. It appears that the Doctor asked the Mayor if the contract with J. J. Shanley had been signed, and when informed that the papers had not passed in proper form he at once stopped all work. The Mayor started the work again, ordering the men back and overseeing the job. The next morning he was on the job again, and with coat off assisted in unloading a ten-ton roller. It is claimed that the political differences are the real cause of the clash.

### Inspector Rejects Some Wood Blocks Lumber

Philadelphia, Pa.—Robert C. Hicks, General Inspector of the Department of Public Works, returned to the city from a trip to Newark, N. J., and Norfolk, Va., where he was sent by the department to inspect the wood that is used in making the blocks that are to be laid on Market street. Mr. Hicks said he was compelled to reject some of the lumber, as it was not up to the specifications, which call for the blocks to be made from the heart of long-leaf yellow pine. When he arrived at Norfolk, Mr. Hicks said that the first consignment, consisting of enough blocks to cover 7,560 yards of paving, had already been shipped to this city. The second consignment, which is due to arrive in this city in a few days, was passed upon favorably by Mr. Hicks. There are enough blocks in this lot to cover 18,500 square yards. On the whole, Mr. Hicks said that the wood that is being used in the blocks is good. Before leaving the South Mr. Hicks left competent inspectors in charge until he returns.

### Little Injury from Dripping Oil

Salt Lake City, Utah.—City Engineer L. C. Kelsey and Contractor P. J. Moran have been looking into the question of alleged damage to asphalt pavement by the dripping of oil from automobiles. The City Engineer says he has found places in front of the city and county buildings where some damage has been done, but has not noticed any serious effects in other parts of the city. He thinks that the dripping of oil from oil wagons does more harm than the gasoline from automobiles. Contractor Moran says he has not noticed much damage yet, even in front of garages. He thinks the principal trouble is caused by coal oil, which frequently leaks out of the lamps of machines.

### Oil for Bridge Roadways

Red Bluff, Cal.—Supervisor George Vestal has had the floor to the Red Bank bridge repaired and covered with gravel and sand. It was then oiled. This method has been tried in several counties and found a success.

## SEWERAGE AND SANITATION

### Finance Commission Does Not Favor Lowest Bidders

Boston, Mass.—A contract for constructing a sewer on North Market street was advertised with an unusual condition. The street is one of very heavy traffic and it was planned to construct an artificial floor of such strength as to permit safe travel over the surface while the construction of the sewer went on. The advertisement stated that the competition was intended to be limited to the most skillful and experienced contractors available and that the award would be made to the lowest bidder in this selected class. After bids were received the Superintendent of Streets awarded the contract to the second lowest bidder at a price \$1,400 above the lowest bid of about \$12,300. The matter was referred to the Finance Commission, which in reply said: "Considering the unusual conditions existing in this case, which make it necessary to take extraordinary precautions to insure public safety and to provide for the rapid performance of the work, the Commission is not prepared to say that the Superintendent of Streets was not justified in awarding the contract to the second lowest bidder."

### Marked Improvement in Dairy Sanitation

Port Jervis, N. Y.—The report of Inspector Rumsey of the condition of the city milk supply shows a great improvement since the Board of Health took the matter up a year ago. When the first inspection was made it was found that conditions existing in seven dairies were such that milk produced there was a positive menace to the health of the consumer. Only two of the dairies scored over 80 and by far the larger majority scored below 60 on a scale of 100 as a perfect score. The last inspection shows that one dairy scores above 90, six score between 80 and 90, and 12 between 70 and 80, while only three are now below 60. The comparative scores tell a great deal of the truth about a milk supply that was a menace to the public health a year ago, and is to-day sanitary to a large degree, says the Inspector. In the place of dark, ill-ventilated stables, reeking with filth, there are now light, airy barns, where everything is clean and neat and sanitary. Old plank and board floors, between the cracks of which dirt, filth and manure have leaked for years to collect underneath in a mass as deep as 14 inches, have been replaced by water-tight, non-absorbent floors in many cases. Cow yards that once abounded in filth are now kept thoroughly clean at all times. All milking utensils are cleaned twice daily. The milk is cooled soon after it is drawn from the cow, thus greatly improving the quality.

### Typhoid Fever at Lafayette

Lafayette, Ind.—Typhoid fever is becoming so prevalent in the city that physicians have warned citizens to use the greatest precautions to guard against infection. There are twelve cases in St. Elizabeth Hospital, six cases in the Home Hospital and many more about the city. Doctors say, in many instances, typhoid fever is brought from another locality, and they think that is the case here.



### Trunk Sewer Field Work Is Progressing

Newark, N. J.—With an office force of six men and several surveying and boring crews in the field, the preliminary work in the task of constructing the Passaic Valley trunk sewer is now progressing smoothly. It was said at the Sewer Commission's office that the reports which are being received daily by Engineer Gregory show a progress in this field work that is fully up to expectations. Three "boring gangs" are now at work in Newark, and the information that they and the surveying crews gather is being sent to the Commission's office in daily reports. They have already collected a large amount of information that will be of value when it comes to the preparation of specifications, and under Mr. Gregory's directions these data are being so arranged by the office force that they will be immediately available whenever they may be wanted. It will be possible with this and other information yet to be gathered by the field force to so prepare the specifications as to materially keep down the cost of the contract work.

### Typhoid Outbreak in Salt Lake City

Salt Lake City, Utah.—The city is suffering from the worst outbreak of typhoid fever that it ever experienced. Twenty-three new cases were reported in a single day, September 22. Up to that date there were 123 cases for the month. Dr. T. B. Beatty, Secretary of the State Board of Health, has asked for a report from the city health officials on the number of patients and the sources of their milk supply. It is stated that 23 patients took milk from one of three dairies against which quarantine has been established at the order of Dr. F. S. Bascom, president of the State Board of Health. City Health Commissioner R. M. Stewart has advised all citizens to boil every bit of water and milk, and clean thoroughly all fruit and vegetables. The water in some of the canyons from which the city gets its supply is also under suspicion. It may be contaminated by washings from the road.

### Sanitary Condition of Cuba

Washington, D. C.—David E. McComb, Chief Engineer of the sanitation work about Havana, Cuba, and Consulting Engineer for the other parts of the island, now visiting Washington, states that the work of sanitation under the Cuban authorities has been so admirable that it is not necessary now to screen the doors or windows of houses to keep out the flies or mosquitos. In his own home Mr. McComb says a fly or mosquito is rarely ever seen. The only cases of yellow fever now in the island are imported, and in the last year there was only one case reported. This remarkable showing has been attained by the frequent and thorough inspection of all premises. Mr. McComb has directed the construction of the street sewer system in Havana, the rectification of the distribution of the water supply, the installation of modern pavements, all at an estimated expenditure of \$30,000,000.

### Water Infected—New System Demanded

Willoughby, O.—With twenty-five cases of typhoid fever in Willoughby, the problem presented by the disease has become such that the village officials devoted three hours to its discussion at one meeting. The discussion was enlivened by the reading of two letters from State Health Officer Probst, both written within the last ten days, in which, in substance, a new water works system is demanded for the village. The present system was installed a year ago, at a cost of \$4,000. The water is drawn from a river, and is passed through a gravel bed. Dr. Probst says tests made before and after the water passed through the bed showed colon bacilli.

### State Health Department Makes Arrests

York, Pa.—Threats that the State Health Department would deal severely with persons responsible for the pollution of the Codorus Creek were carried out when three citizens of Glen Rock were arrested, charged with wilfully emptying sewage from a factory which they conduct into the south fork of Codorus Creek. It is from this fork of the creek that the drinking water for the city of York is secured.

## WATER SUPPLY

### Liberal Offer for Right of Way

Bayonne, N. J.—The Hudson County Water Company, in order to get a pipe line through which it may convey water from Belleville, N. J., to Staten Island, has offered to give Bayonne, free of expense, an additional thirty-inch main to be used by the city in the event of an accident to the main now in service. The company also offers to provide the extra main without the city extending its present contract with it eleven years, as it has insisted upon for some time, and will allow the city a bonus of \$5 on every million gallons of water that passes through Bayonne to Staten Island. As an extra inducement it will furnish all the water needed for fire purposes and will make no charge for it.

### Collingswood Well a Good One

Collingswood, N. J.—Chief Hollingsworth, of the Camden Water Department, has examined the new well at Merchantville and says that it shows a natural flow of 100 gallons a minute and is capable of yielding 400 gallons each minute under suction draft. This is 575,000 gallons a day, equalling the best well at the Camden water plant. He declares that sufficient water can be obtained from this well alone to supply the whole of Collingswood and vicinity.

### Dallas Water Famine Serious

Dallas, Tex.—City authorities are manifesting keen anxiety over the threatened water famine. Before economy was urged upon the people, the daily consumption from the city's water system averaged about 12,000,000 gallons. The pumping registration has now fallen below 7,000,000 gallons. Efforts to increase the visible supply continue and privately owned shallow and artesian wells are being called on to reinforce the output of the public plant. The city's artesian well at Turtle Creek, commonly known as the Sharp well, has been put into commission. The air compressor was attached and the machine started. The well yields a good supply of clear, fine, artesian water, similar to that downtown, coming from the various wells sunk to the Paluxy sands. This is expected to give an additional supply of about 350,000 gallons per day.

### Water Works Has Auspicious Opening

East Grand Forks, N. D.—The opening of the water works with its mechanical filters was celebrated by a reception to citizens by Mayor Hugh Dunlevy, Superintendent Shelly, of the water works plant, and other city officials. Music and speech-making composed the program. The workings of the plant were explained to citizens and the opinion seemed to be that East Grand Forks had the best water works system of any city in the Northwest.

### Water Board Amenities

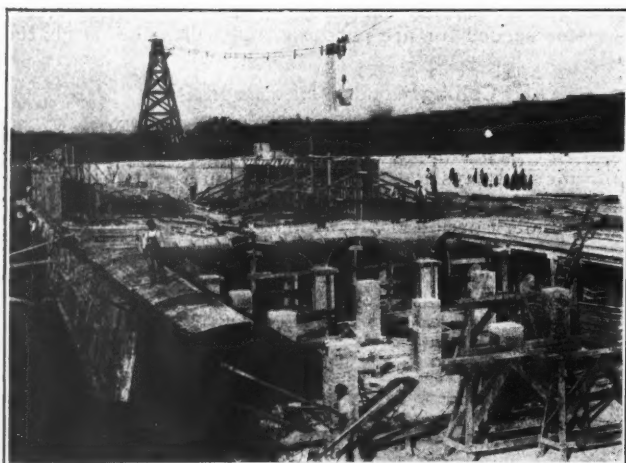
Middletown, N. Y.—The resignation of President George T. Walker and Commissioners H. H. Blanchard and A. E. Hopkins, of the Board of Water Commissioners, have been presented to Mayor Robert Lawrence. The Mayor has also requested the resignations of the other two members of the Board—Thomas M. Kane and I. M. Lawrence. The resignations of the first three were conditional on the resignations of the other two. Mayor Lawrence some time ago suspended Commissioner Lawrence pending an investigation regarding statements he was alleged to have made reflecting on official acts of some fellow Board members. City Council reinstated Lawrence, and Blanchard and J. B. Giles, a former member of the Board, then commenced an action against Commissioner Lawrence for alleged slander, asking damages in the amount of \$25,000 each. The case has not yet been tried.

### Town Has Water Famine and Darkness

South Fork, Pa.—Owing to the continued drouth both reservoirs of the South Fork Water Company on Sandy Run have gone dry, and South Fork is without water again this fall. The electric light plant was forced to shut down on account of the lack of water for the boilers, and the town was plunged in darkness.

### Wilmington Filter Approaches Completion

Wilmington, Del.—Wilmington expects that after the completion of its new filtration system in January next typhoid fever will be practically eliminated from the city. The plant will have a daily capacity of 15,000,000 gallons and consists of six filter beds, shown in the illustration, 40 feet wide by 352 feet long, superimposed upon a groined arch reservoir of 6,000,000 gallons' capacity. At the extreme end of the plant there will be a dry gallery containing all the influent and effluent pipes and regulating devices, all visible and readily accessible. The roof of the filters will be of reinforced concrete, supported by steel beams and columns resting upon the filter walls. Attached to the filter walls



Courtesy Wilmington Star

WILMINGTON, DEL., WATER FILTRATION PLANT

are brackets supporting rails, on which will be installed and operated a sand washing machine of the Blaisdell type. The requirements of this machine are that it shall thoroughly wash and cleanse the filter sand in the bed to a depth of two feet, without the removal of any sand from the bed and without lowering the water upon the bed below that of normal filter working conditions.

### Water from Mountain Spring Contaminated

Henderson, N. C.—The water system, which has long been considered one of the best in North Carolina, has been found to be contaminated. The trouble arises from the recent use of part of the watershed on the mountain as pasture for cattle. The source is a fine mountain spring, with a good flow, but water from the pasture is washed into the reservoir lower down the mountain side.

### Abolish Water Works Commission

Parkersburg, W. Va.—City Council, by the adoption of a resolution prepared by City Attorney W. H. Wolfe, has voted to abolish the Water Works Commission. The action was the result of a controversy arising over the management of the water works and followed the reading of a report from the Commission in which they rejected a compromise proposition sent to them by the Mayor, Council and Board of Affairs. Litigation may follow.

### Water Works Commissioners to Rush Job

Oswego, N. Y.—Owing to the fact that Sub-Contractor Leander T. Brogan has failed to complete the contract let to him by the A. Q. Thatcher Company for drilling and trenching work on the lake water intake, the Commissioners of Water, at a meeting, adopted a resolution directing the Thatcher Company to bring a dredge here and complete the contract as soon as possible, working sixteen hours per day until the contract is completed, weather permitting.

### No Rent for Water Meters

Richmond, Ind.—The action of the City Council in passing an ordinance which provides that it shall be unlawful for water or gas companies to charge patrons rent for meters means a fight in the courts. The Richmond Water Works Company has made charges of from 50 cents to \$1 a month for meter service, and will, it is asserted, continue to demand payment of the fee from all patrons, despite the Council's action. This will bring the case to an issue, as the company will be prosecuted on the charge of violating an ordinance, and the courts will be appealed to.

## STREET LIGHTING AND POWER

### Electric Light and Water Works Dams Destroyed

Fergus Falls, Minn.—Four dams, one a new concrete structure, completed at a cost of \$60,000 by this city last fall for operating the electric light plant, were destroyed by a rush of water and the total damage will be about \$200,000. The dam was lifted from its foundations by the pressure of a 30-foot head of water behind it. The lighting station, with all the machinery, which rested on the dam, was lost. A mile down stream the flood carried away the city water works dam, a wagon bridge and three railroad bridges, the Red River mill dam, the Fergus woollen mill dam and part of the Wright dam.

### May Use Tungstens Instead of Arcs

Middletown, Conn.—The Street Committee of the Common Council has placed four tungsten lamps on Oak street, using them to replace one arc lamp, formerly in use by the city there. Electricity for the tungsten lamps will cost \$72 a year, while the cost of the arc lamp was \$89.50 and in the opinion of the members of the committee the service from the tungstens is very much better than could be had from the arc lamp. The people of the city are generally invited to visit Oak street in the evening and note the effect of the small lights as compared with the larger lamp. This street was lighted as an experiment and if it proves satisfactory to the taxpayers other streets about the city will be provided with these lamps, the idea being that a number of smaller lamps at frequent intervals will be preferable to a few high-powered lamps shaded more or less by the foliage of trees in the summer. A comprehensive plan for changing the method of lighting the city has already been marked out and only awaits public approval for adoption.

### Plans for White Way Discussed

Muskogee, Okla.—Secretary Sangster, of the Commercial Club; H. H. White, manager of the electric company; Mayor McGarr and members of the Light Committee have met and discussed the plans for a "Great White Way" in Muskogee. It was proposed that the lighted area should reach from Cherokee street west on Broadway and Okmulgee to Fourth street. On these streets poles fifty feet distant would support brackets containing 75-candle power lights and one 100-candle power light. The five lights will consume about the same amount of current as one arc light, which costs about \$7 per month. The building of a huge arch across Broadway near its junction with Main was proposed and met with approval. The name "Muskogee" in large electric letters would appear on the east facing of the arch.

### Titanium Carbon Lamps Installed in Pawtucket

Pawtucket, R. I.—The Pawtucket Electric Company has been installing one of the latest types of arc lights, a modified flaming arc having a titanium carbon. More than 160 of these lamps have been placed in various parts of the city. The new lamp is distinguished from the old enclosed arcs by its different color and greater illumination. The advantages claimed for the new lamp are about 20 per cent increase in illumination and better distribution of light, with practically the same cost of operating. The lamp is said to be new and not in use anywhere except in Pawtucket.

### Committee Attacks Subway Problem

Syracuse, N. Y.—The Special Subway Committee of the Common Council has held its first meeting to consider the proposed campaign to reduce the number of wires in the streets and secure the further construction and use of subways. The condition most complained of is the failure of the public service companies to construct new subways in streets where new pavements have been ordered. Another complaint is that where subways have been laid cables have not been extended through the subways, but the wires left on poles. In January, 1906, Common Council adopted an ordinance covering the matter of subways, defining when and where they should be laid by the different companies. The terms of the ordinance have not been complied with and there is a question whether it does not conflict with the franchise rights of the companies.



## FIRE AND POLICE

### Fire Alarm Boxes Receiving Attention

Altoona, Pa.—City Electrician C. S. Downs is engaged in placing glass cages on several of the fire alarm boxes on the eastern side of the city. The work brings the number of boxes that can be opened instantly up to 55 and this number will be greatly increased in the near future. At first the experiment of placing the key in each fire alarm box was tried only on the crowded business streets and directly underneath an electric light, but as these were seldom molested the idea was gradually put into effect in the downtown district, until now almost every box between Fifth and Fifteenth avenues has been changed. The only box with which any trouble is experienced is the one at Eleventh avenue and Tenth street, for some reason or other this glass receiving more attention from passersby than any other one, with the result that a new glass has to be placed in the box about three times a week. The glass boxes are not placed on fire alarm boxes situated on dark corners, as this kind always tempts the joker to turn in a false alarm, causing an endless amount of trouble for the fire department. In the outlying sections it has been found that boys tamper with the boxes and this has caused the department to become wary and work on the central portions of the town first. Although the sending of a false fire alarm is a penitentiary act, yet few perpetrators of such hollow jokes are ever caught and it is not the intention of the department to aid and abet anyone whose sense of humor is so perverted.

### Change in Fire Commands

Bridgeport, Conn.—A change has been made in the existing rule concerning the command of independent companies. Hereafter the commanders will have charge of their companies from the tap of the bell, superseding the house captains when the bell strikes. The matter came up on an investigation of the charge that Lieutenant Hegerty had responded to Box 32 instead of 122 on August 27. The lieutenant said he got his call from the house captain.

### Box Numbers No Longer Sounded

Cincinnati, O.—In accordance with an order of Chief Archibald, the city's fire bells will no longer sound the number of a box when an alarm of fire has been turned in. For several years past, when new fire houses were built, the old bell towers have been omitted. Now where the fire houses have bells a single tap of the gong will announce the fact that there is a fire in some part of the city.

### Fire Department Reorganized

Connellsville, Pa.—An ordinance has been passed reorganizing the Fire Department and a resolution followed it raising the salary of the Chief to \$65 per month and the firemen \$60. The ordinance provides for a central paid Fire Department of a Chief and four or more regular firemen and four volunteer companies of not less than ten men. It is further provided that the police shall attend all fires and where not needed in preserving order shall lend their aid in fighting fires.

### Warns Police and Firemen to Keep Out of Politics

Evansville, Ind.—Mayor Nolan has sent a letter to the Board of Safety stating that he deems it important at the beginning of the activities of the city campaign to request the Board to instruct the officers and members of the Police and Fire Departments to refrain from any active participation in politics. He says that an investigation of recent internal differences in the Fire Department warrants the belief that petty jealousies resulting from pernicious partisanship have led to most of the difficulties.

### Auto Chemical Goes Thirty-five Miles to Fire

San Diego, Cal.—An auto chemical engine was dispatched to a forest fire in Escondido canyon. It made the thirty-five-mile run over rough roads in one hour and forty-nine minutes. The engine held the flames in check near the outskirts of Escondido until the flume lines could be repaired and more water was available.

### Improvement in Police Records

Manchester, N. H.—In the purchase of a rotary neostyle for use in the Police Department it is believed that a step has been taken which will practically revolutionize some methods in vogue in the Department. The machine is one of the latest models and has a capacity of 40 sheets per minute. With this machine in operation Chief Healy plans to keep an exact record of matters happening during the day which it is desired the night force should look up, and at the close of the day shift run off enough copies of this record to supply each night officer with one for his own personal reference. In this way it is hoped matters for investigation will be kept more clearly in the minds of the patrolmen, and with these slips convenient for placing on file each one has a complete record of the origin of each case or complaint. Under the present system the record is kept in a large book, used especially for this purpose, and each night, before the men are sent out, the items written down are read off to them. While this has been the best thing possible under previous conditions, it has often happened that events of only minor importance have slipped the memories of the policemen and thus gone uncared for. The machine can also be used for other purposes, such as sending out circulars, making duplicate copies of the regular Department business, etc., and is expected not only greatly to lessen some of the clerical work of the Department, but to put it all on a typewritten basis and make it more convenient for preservation.

### Police Gymnasium and Training School

Leavenworth, Kan.—The Police Department is to have a gymnasium and a training school. The Department has cleared out a room in the rear of the city building and has already got a punching bag and a teacher. The teacher is Captain McClure, who had a number of years of experience in running a gymnasium.

### Old Papers for Hose Carriage

East Greenville, Pa.—Town Council has appointed a committee to gather all the old newspapers in the borough, which are to be converted into cash and that sum is to be used for the purchase of a new hose carriage.

### Medical Care of Prisoners Ordered

Washington, D. C.—In order to avoid the risk of persons dying in police stations of apoplexy or extreme drunkenness, Major Sylvester has issued orders that whenever such a case falls into the hands of the police, or whenever there is doubt whether a person is so afflicted, a surgeon must be sent for without delay or the person sent to the nearest hospital. He calls attention to the fact that the police surgeons and the surgeons to the poor are subject to call at such times. "It ought to go without saying," the order continues, "that a case of total collapse from drunkenness needs attention more than a case of ordinary drunkenness, and that in extreme cases of this character they partake of dangerous illness and should be cared for in conformity with the above instructions. Cells in which persons are confined should be visited by some one of those in charge of a station house at least every half an hour, and at shorter intervals, as the situation may demand, to ascertain the condition of those who may be incarcerated therein."

### Washington's Annual Fire Record

Washington, D. C.—Chief Engineer Wagner's annual report states that during the year there were 506 bell alarms, an increase of 40 over the preceding year, and 494 local alarms, an increase of 78. The number of fake alarms was 53, a decrease of 34 over the preceding year. The loss involved by the bell alarms was \$259,149.50, and by the local alarms \$61,412. The total loss was nearly the same as last year. The Chief recommends that Congress be asked to appropriate more funds for fire protection for public schools. The installation of a gravity high-pressure system for the District is urgently recommended, and the incidents of July 6 are cited as showing the need of it. On that day two fires occurred simultaneously which called out every available piece of apparatus except three chemical companies in the suburbs, and the entire District was without fire protection. Speaking of motor apparatus, the Chief says its superiority has been clearly demonstrated both in respect to efficiency and economy.

## GOVERNMENT AND FINANCE

### Leavenworth Flourishes Under Commission

Leavenworth, Kan.—"Leavenworth now has clean streets; more special improvements have been made the past year than in any 10 years previous; the streets are being kept well lighted, and within the period of a few months our city has changed so that to-day it could hardly be recognized as the Leavenworth of five years ago. What is responsible? The commission form of government." In this manner the results following the adoption of the new form of municipal government were summarized by City Engineer Joe O'Neil in an interview at Topeka. According to Mr. O'Neil, the Commissioners will spend \$200,000 this year in special improvements. In no former year have these special improvements exceeded \$25,000. "And the strange part of the new régime—they are able to run the city without the joint fines. Under the old system \$10,000 a month was collected; but where this money went no one ever found out. The Commissioners do not seem to miss this source of revenue. I believe if you will ask any one in our city if he is satisfied with the change from the ward system to the commission, he will answer in the affirmative. We are running a better city government on less money than ever before."

### Enid Adopts Commission Plan

Enid, Okla.—By a majority of more than two to one the city has approved a charter recently prepared by the Board of Freeholders and adopted the commission form of government. An election of officers under the charter will be held in 90 days.

### Petition for Commission Form

Orange, Tex.—A petition has been presented to the City Council asking for an election to vote on the question of adopting the commission form of government for Orange. The election will probably be called at an early date.

### City Without Funds for Running Expenses

Charleston, W. Va.—Mayor James A. Holley appeared before the Chamber of Commerce and said that the City of Charleston was financially wrecked and that unless assistance was rendered the Board of Affairs would have to cut off all fire hydrants, all electric lights, and that the Fire and Police and Health Departments and the Board itself would be without salaries.

### State Examiner Discovers Peculiar Mayors

Columbus, O.—Some unusual situations in the villages of Wood County were found by State Examiner D. O. Heeter, who has reported to the State Accounting Bureau on these places. Mayor T. C. Tobin of Cygnet is directing the affairs of that municipality from his place of employment in Canada, and the Examiner cannot see how he can faithfully discharge his duties and be that far away. In Bairdstown he found Mayor L. Kistler serving in the multiple rôle of janitor of the Town Hall and caretaker of the public pump, and has been drawing pay for all this work. This is a violation of the law limiting an official to one salary.

### Common Council Sets New Precedent

Nashua, N. H.—At the regular meeting of the City Government the Common Council refused to go into joint convention with the Mayor and Aldermen to confirm the Mayor's appointments of members of the Commission to revise the City Charter. This is the first time on record, declares Mayor Shedd, when one board has refused to meet the other for such a purpose. The motion to meet in convention passed the Aldermen unanimously, but in the Council the Democrats voted "no," and the motion was lost.

### Unable to Regulate Private Billboards

Providence, R. I.—According to the opinion of City Solicitor Baker upon a petition which was submitted to the Board of Aldermen by a number of citizens seeking the "abatement of a nuisance caused by a billboard," the nuisance complained of being that the space enclosed on three sides by the board has been used as a dumping ground for decaying fruit, fish and vegetables, ashes, waste paper and sawdust, the Board is without power under existing legislation to restrain nuisances incident to billboards located on private land near streets.

### Cincinnati's Mayor Starts "Kicking Day"

Cincinnati, O.—Mayor John M. Galvin, carrying out his idea of uniformity in all things possible, has established a "kicking day" for the citizens of Cincinnati. On that day they can go to City Hall and see either him or his secretary and register their complaints. Thursday is the day, and Mayor Galvin is now singing that favorite little ditty, "Thursday always is my Jonah day." However, there are not so many complaints coming in as he thought there would be. Approximately, 500 were made the first day, but hardly any of them are of any moment. They are about almost everything imaginable, from grade crossings to fly-paper on the street.

### Spokane Mayor Places Ban on Secret Society

Spokane, Wash.—Mayor N. S. Pratt has ordered all of the city employees under his appointive power who belong to the Panta Pantois political secret society to either resign at once from the Panta Pantois or quit the city's employ. "I believe that, after the findings of the investigation committee, every public officer who belongs to that organization owes it as a duty to voters and taxpayers either to abandon the Panta Pantois or resign from public service. I shall expect one or the other from the men under my jurisdiction."

### To Appraise City Property

Wheeling, W. Va.—The Board of Control will name a Board of Appraisers to go over all city property and appraise it with a view to learning accurately what is the worth of property owned by the municipality. This will then be placed on the books of the city as assets. The action is to be taken at the suggestion of Auditors Cameron and Rickey, who are devising a new system of bookkeeping for the city. There has never been an appraisal of city property, and as a result nobody knows how much the city is worth.

## REFUSE COLLECTION AND DISPOSAL

### Need of Waste Disposal Plant Increases

Baltimore, Md.—Street Cleaning Commissioner Joseph L. Wickes has included an item of \$100,000 in his annual estimates for a plant to dispose of street refuse. Last year he made the same request, but it was rejected by the Board of Estimates. The necessity for it increases every year, and there seems to be no other way of getting rid of the waste collected in the city. His idea is to have a plant erected just outside of the city and have receiving stations established at advantageous points from which the refuse can be taken in electric cars.

### Incinerator Ends Garbage Troubles

Berkeley, Cal.—The end of Berkeley garbage troubles is in sight. It is come with the completion of a large incinerating plant at West Berkeley and the announcement made that the City Council has come to an understanding with the builders. It is said that a contract is to be let to the company under which it agrees to burn all the garbage in the city at \$1 a ton.

### Reduction Plant Fails to Keep Up with Work

Bridgeport, Conn.—Garbage conditions are in bad shape owing to the inability of the By-Products Company to dispose of the amount received. Deliveries at the plant were stopped for three days, yet the plant could not catch up with the work. In the meantime the garbage has been hauled to the town farm and buried, under protest of Merle C. Cowles, Superintendent of the farm. Superintendent Cowles informed President Ober of the Health Board that if the property was his own he would not permit the garbage to be buried on the land for any amount of money. It seems that the tin cans and broken bottles come to the surface, ruining pasture land and subjecting valuable cattle to injury of feet and infection, and sometimes kills them. Then when the land is ploughed the horses cut their feet, and the likelihood of the horses and cattle to injury, which brings additional expense upon the city, reflects upon Mr. Cowles, who may be blamed for the poor condition of the live stock and an occasional death.



## RAPID TRANSIT

### Boston Elevated Would Control Connections

Boston, Mass.—The Boston Elevated Railway Company is planning to secure control of the Boston & Northern, the Old Colony, the Blue Hills, the Boston & Worcester, the Middlesex & Boston and the Lexington & Boston Street Railway systems. Frederick E. Snow, counsel of the Boston Elevated, has appeared before a special commission consisting of the Massachusetts Railroad Commission and the Boston Transit Commission in advocacy of the proposition. The Boston Elevated cannot take advantage of the State law permitting consolidations of connecting street railways because of a charter provision that it cannot charge more than a 5-cent fare. Purchase of controlling interests is accordingly what is sought.

### Opposed to New Traction Grant

Chicago, Ill.—The reorganizers of the Chicago Consolidated Traction Company have asked the City Council for a franchise. There is little doubt that it will be refused, as the policy of the city is to get the entire street railway system under one control, as it is believed that in that way only can the best service be provided. In fact, the Aldermen may make the application the occasion for suggesting to the Consolidated that it merge with the Chicago Railways Company.

### Mayor Tom L. Johnson Compromises

Cleveland, O.—With balloting on his re-election to the Mayorality only a few weeks distant, Mayor Tom L. Johnson made a move in the eight-year traction battle, when the City Council voted to leave to Federal Judge R. W. Tayler determination of the valuation of the city's traction system and the rate of fare to be included in the franchise, which is to end the long struggle between the "3-cent-fare" Mayor and the Cleveland Railway Company. The company demanded that Judge Tayler decide these points, agreeing to all other demands of the Mayor and the Council, since the Schmidt traction grant, favored by Mayor Johnson, was defeated in a referendum several months ago. His friends hope to re-elect him on the promise of traction settlement.

### Street Cars at Last

Lawrence, Kan.—A large part of the population of Lawrence deserted the church service Sunday, forgot that the University of Kansas was preparing to open, and went to the Santa Fe station to watch the unloading of the electric cars that will be used on Lawrence's new electric railway. The conductors began ringing up fares the next morning and all Lawrence spent the day taking car rides.

## MISCELLANEOUS

### Mayor Orders Postage Stamps Perforated

Boston, Mass.—Mayor George E. Hibbard, who was formerly Postmaster of the city, has issued a general order to the effect that all postage stamps purchased for city use be perforated for purposes of identification. The order reads:

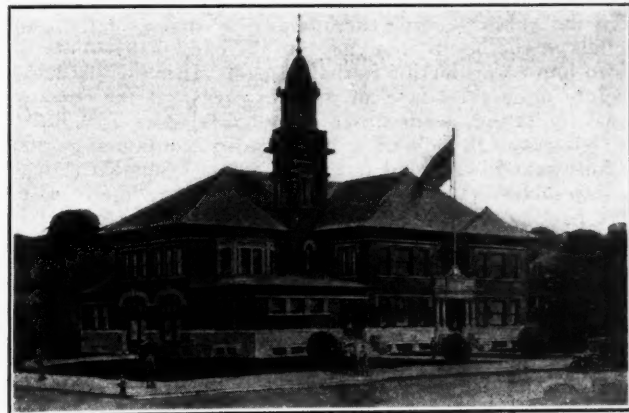
To the Department Heads: For the purpose of identifying as the property of the City of Boston all postage stamps used in the transaction of the city's business, it has been decided to perforate all such stamps with a special design. The Superintendent of Printing has procured a suitable machine for this purpose, and hereafter all postage stamps used by the city departments are to be so perforated. All postage stamps are to be obtained from the Superintendent of Printing, and the use thereof for other than strictly business purposes is hereby forbidden.

### Enforcement of Auto Regulations Is Lax

Indianapolis, Ind.—The motor cycle officers have lately made a number of arrests of violators of the motor laws. The reason is said to be that the police want two new motor cycles, for which money is lying in the treasury. The Board of Safety has hitherto refused to purchase the machines for which Council appropriated the money because it was thought motor cycle men did not make a reasonable average number of arrests. There is considerable complaint also that the new ordinance prohibiting persons under 17 years of age from driving and requiring red lights on the back of machines left standing on the streets at night is not enforced.

### Sewickley's Handsome New Municipal Building

Sewickley, Pa.—The Municipal Building, now in course of erection, will be a beauty in point of architecture, as well as modern in every respect. The contract price is \$24,920 for the building without furnishings, and Cuthbert Bros. of Pittsburg are the contractors, while Charles W. Bier of the same city is the architect. The Building Committee from Councils is composed of A. H. Diehl, chairman; Frank G. Paulson, Frank W. Straw and W. E. Patton. The new building will face Thorn and Chestnut streets, with a clear view of the public



Courtesy Pittsburg Gazette-Times

BOROUGH HALL HOUSING ALL DEPARTMENTS

school building, while the jail entrance will be on Washington street. It will be completed by the first of the year, and will be used only for borough business. There will be council chamber and committee rooms, jail of eight cells and complete police headquarters, water company offices, Board of Health rooms, and rooms for the engineering department; in fact, for all the borough officers rooms will be set apart. It is anticipated that offices on the second floor may be rented to a justice of the peace, that all the legal transactions may be conducted there. A fireproof vault will be included where all the valuable borough papers may be free from destruction by fire. There will be rooms allotted to the fire apparatus, stable for the horses, wagon sheds and a voting room for the First Ward. Altogether, rooms will be provided for everything to be operated for and by the borough.

### Cleveland Loses No Trees

Cleveland, O.—According to a statement of City Forester Body, there has been practically no loss among the trees in Cleveland this year, except in the downtown factory district. In such district it is impossible, he says, for tree life to exist for any great length of time. The effective spraying methods used by the Department have exterminated the most destructive insects, and it is proposed to keep them exterminated. Chestnut, linden and maple trees suffered severely from the unusual activity of the tressock moth last year, and only constant use of the big city power sprayers succeeded in exterminating the pest.

### A Difficulty of Weights and Measures Solved

Newburyport, Mass.—The report that there is laxity in the inspection of weights and measures in Newburyport has just been made public through the medium of the State Inspector. With the increased cost of goods citizens feel that they should receive good measure, and they are anxious to have the conditions remedied. The present local Inspector of Weights and Measures receives a salary of \$300, and does not devote his whole time to the work. Mayor Hunt has a plan which he will recommend to Council. He proposes to consolidate the offices of Inspector of Provisions, Inspector of Milk and Inspector of Weights and Measures and put them all under the jurisdiction of one inspector, who shall receive a salary of \$1,000, have an office in the City Hall and have the services of a clerk part of the time.

### Will Trim All Trees

Topeka, Kan.—Owing to hundreds of complaints coming in from all parts of the city about low branches of trees interfering with pedestrians and wagons, it has been decided to have every tree on the main residential street of Topeka trimmed this fall.

## LEGAL NEWS

### A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities

#### Bonds—Limit of Debt—Constructive Notice

*St. Lawrence Township vs. Furman.*—A purchaser of bonds of a municipality which is subject to a constitutional provision limiting its indebtedness to a certain percentage of its assessed valuation is bound to ascertain at his peril from the public records the amount of such valuation, and recitals in the bonds that they do not exceed the limitation afford him no protection in that respect. If municipal bonds disclose upon their face an issue in excess of the constitutional limitation, a purchaser cannot rely upon a recital to the contrary. Bonds of a municipality contained recitals as follows: "This bond is one of a series numbered from 1 to 23, inclusive, of like tenor and date." The bonds in suit were Nos. 17 to 23, inclusive, and were for \$500 each. Held, that the use of the word "tenor" fairly imported that the other bonds were for the same amount, and that a purchaser was charged with notice of such fact, and that such bonds were the last of the series and consequently illegal, since the aggregate amount far exceeded the limit placed upon the indebtedness of the municipality by the State constitution.—United States Circuit Court of Appeals, 171 F. R., 400.

#### Street Improvements—Assessments—Franchise

*In re City of Seattle. City of Seattle vs. Seattle Electric Company.*—Under Laws 1893, as amended by Laws 1907, authorizing assessments for street improvements on the several "lots, blocks, tracts and parcels of land or other property," a street railroad franchise in a street to be improved is a mere easement, and is not assessable as "other property"; the rule of *ejusdem generis* applying. Statutes conferring power to levy and collect assessments for street improvements will not be enlarged by equitable construction.—Supreme Court of Washington, 103 P. R., 807.

#### Boards of Health—Persons with Contagious Diseases

*Kirk vs. Wyman et al., Board of Health.*—Municipal Boards of Health derive their authority to isolate persons afflicted with contagious diseases from the Constitution, giving to the General Assembly authority to create Boards of Health wherever necessary, and giving such Boards authority to make such regulations as shall protect the health of the community and abate nuisances, and the Civil Code of 1902, passed pursuant thereto, authorizing Boards of Health to make and enforce all needful rules and regulations to prevent the introduction and spread of infectious or contagious diseases by the regulation of intercourse with infected places, by the arrest, separation and treatment of infected persons and those exposed to contagious or infectious diseases, to establish hospitals therefor, and to provide regulations for the management thereof. Statutes and ordinances requiring the removal or destruction of property or the isolation of infected persons, when necessary to protect public health, do not violate the constitutional guaranty of enjoyment of liberty and property. Rules and resolutions of City Health Boards, within the scope of their authority, have the force of legislative enactment. Complainant, a lady of culture and refinement, advanced in years, while acting as a missionary in Brazil, was stricken with anæsthetic leprosy, and on returning to South Carolina had for many years lived in A., attending church, teaching in Sunday school, and mingling freely with people in social life on the opinion of a distinguished specialist that her disease was not contagious, during which time it did not appear that she had imparted the disease to any other person, and it appeared that there was little, if any, danger of contagion, except from touch or close personal association. Held, that complainant's condition did not justify her immediate removal by the City's Board of Health to the pesthouse, consisting of small cabins near the city's dumping grounds previously used for incarcerating negroes afflicted with smallpox and other dangerous diseases, while its Board of Health was constructing a cottage for her outside the city limits.—Supreme Court of South Carolina, 65 S. E. R., 387.

#### Injury on Highway—Notice

*Abbott vs. City of Rockland.*—Revised Statute imposes, as a condition precedent to the right of a traveler to recover for injuries received upon a highway, proof on his part that "the municipal officers or road commissioners of such town or any person \* \* \* authorized by any municipal officer, or road commissioner of such town, to act as a substitute for either of them, had twenty-four hours' actual notice of the defect or want of repair." The twenty-four hours' notice required by Revised Statute must be actual notice, not constructive, and it must be of the identical defect which caused the injury. The twenty-four hours' actual notice, required by Revised Statute, may be proved by direct or circumstantial evidence and may be established by all grades of competent evidence. Where the plaintiff sought to recover damages for a personal injury received by reason of an alleged defective sidewalk in the defendant city, and in relation to the twenty-four hours' actual notice of the defect proof that such notice was given to a police officer, coupled with evidence that such complaints were ordinarily made to the police department, and that the police officers were in the habit of reporting them to the street commissioner, held not to be sufficient evidence to meet the statute requirement. Where it was no part of the official duty of police officers to receive complaints about highway defects and report them to the road commissioners, held that there was no such official duty or responsibility resting upon such officers as would give rise to a presumption that such a notice given to them was by them communicated to the road commissioner.—Supreme Judicial Court of Maine, A. R., 865.

#### Paving Contract—Specifications Regarding Supply

*O'Neill & Viscount et al. vs. City of Elizabeth et al.*—Where neither the advertisement nor specifications for bids for a street improvement required any particular kind of brick, and it did not appear that the City Engineer, in informing relators that they should specify "Metropolitan" or "Mack" brick, had any authority to change the conditions imposed, the fact that relators applied unsuccessfully to get prices for "Metropolitan" and "Mack" brick was no excuse for their failure to furnish a certificate with their bid that the manufacturers authorized the bidder to guarantee an uninterrupted supply of paving material furnished within the time fixed for the completion of the contract. A condition of an advertisement for bids for street paving, requiring the bidder to furnish a certificate from the manufacturer of the brick to be used guaranteeing an uninterrupted supply within the time fixed for completing the contract, was not unreasonable, but proper.—Supreme Court of New Jersey, 73 A. R., 872.

#### Elections—Ballot Numbering

*In re Town of Groton, Tompkins County.*—The fact that the ballots used in submitting the four propositions of Liquor Tax Law had numbers printed upon their backs, conforming to the numbers upon the stubs from which detached, enabling any one to compare the ballots with the record of votes kept, and thus acquire a knowledge of how each voter answered the questions, is not a sufficient reason for setting aside the election, where no protest was made to the election officers either before or at the canvass of the votes, and the mistake in not having the number on the stub alone is not shown to have affected the result.—Supreme Court of New York, 118 N. Y. S., 416.

#### Ordinance Inconsistent with Statutes—Validity

*City of New York vs. Alhambra Theater.*—An ordinance prohibiting the identical theatrical and other performances on Sunday as are prohibited by Penal Code, and prescribing the same penalty, but providing a different method of prosecution and a different application of a penalty recovered, violates sections 719 and 728, requiring an offense specified in that code to be punished according to its provisions, and not otherwise, and that no provision thereof shall be deemed repealed unless referred to and directly repealed, and Greater New York charter, section 44, forbidding an ordinance inconsistent with the State laws.—New York Supreme Court, 118 N. Y. S., 471.



## NEWS OF THE SOCIETIES

**League of California Municipalities.**—Members of the league met at Santa Cruz September 21-24, when the following program was carried out:

Tuesday, Sept. 21, 2 p. m.—President's address, Hon. A. K. Orr, Mayor of Visalia, president of the League of California Municipalities; address of welcome, Hon. T. W. Drullard, Mayor of Santa Cruz; response, Hon. J. J. Hanford, Mayor of San Bernardino, past president of the League; report of secretary; "Government by Commission Plan," opened by A. E. Dodson, Esq., Councilman of the City of San Diego; followed by G. A. Follett, Esq., Councilman of the City of Richmond. Concluded by Hon. Beverly L. Hodghead, Mayor of Berkeley.

Tuesday, 8 p. m.—A reception to the delegates at the Santa Cruz Free Library.

Wednesday and Thursday.—Delegates assembled in their respective departments.

Department of Engineers.—President, S. J. Van Ornum, Pasadena; vice-president, C. H. Pieper, San Jose; secretary, E. Q. Turner, Berkeley. Councilmen and street superintendents also attended this department. "Municipal Improvements in Oakland," Hon. Frank K. Mott, Mayor of Oakland; "Antioch's Experience with Petro-lithic Pavement," Wm. T. Kearney, city attorney of Antioch; "Recent Experience with Crude Oil in Sacramento," Hon. Clinton L. White, Mayor of Sacramento; "Macadam Pavement with Asphaltic Oil Binder," S. J. Van Ornum, city engineer of Pasadena; "The Recent Decision Against Pomona, Sunset T. and T. Co. vs. Pomona," J. P. Wood, city attorney of Pasadena.

Department of City Attorneys.—President, Albert Mansfield, of Redwood City; secretary, G. A. Webb, of Crescent City; "Force Account Method in Public Work," Merle J. Rodgers, city attorney of Ventura; "Municipal Licenses," P. G. Sheehy, city attorney of Watsonville; "Woodland's Experience with the Local Improvement Act of 1901," E. B. Mering, city attorney of Woodland; "Voting Power of the President of the Boards of Trustees of Fifth and Sixth-Class Cities," G. A. Webb, city attorney of Crescent City; "Recent Court Decisions on Municipal Questions," W. J. Locke, city attorney of San Leandro.

Clerks and Auditors.—President, D. D. Kellogg, Pasadena; secretary, H. H. Turley, Richmond; "Publication of Municipal Statistics," M. L. Hanscom, auditor of Berkeley.

Wednesday Evening (Entire Body).—"Municipal Ownership," "The Relation of Municipalities to Public Service Corporations," Percy V. Long, city attorney of San Francisco; "Why Gilroy Ceased to Operate Its Municipal Gas Plant," Hon. Walter G. Fitzgerald, Mayor of Gilroy.

Thursday Afternoon.—Joint session of the League of California Municipalities with the California Public Health Association. "Public Health," "The Strength of Being Clean, as Applied to Cities," Dr. David Starr Jordan, president, Leland Stanford, Jr., University; "The Modern Septic Tank," Geo. L. Hoxie, Esq., city engineer of Fresno; "Electrolytic Treatment of Sewage," Hawgood, Esq., consulting engineer of Los Angeles; "Garbage Incinerators, Sewage Disposal and Water Supply for Small Cities," C. E. Moore, city engineer of Santa Clara.

Thursday Evening.—"Growth of Public Expenditures," Hon. A. B. Nye, State Comptroller.

The State Board of Health had its recently constructed sanitation car stationed at Santa Cruz during the convention for inspection by the delegates.

**Tennessee Good Roads Association.**—

At the convention at Nashville September 21-23 the following action was taken: A resolution favoring the border-to-border boulevard was defeated; State aid to counties in road building was endorsed; a general law, authorizing counties to levy road tax or issue road bonds was recommended; the Brownlow-Lattimer post roads bill was endorsed; the substitution of a cash tax for the old labor tax was endorsed; a permanent Highway Commission to have general supervision over all road building was recommended; the appointment of the present Highway Commission was commended, and Governor Patterson was thanked for calling the convention.

**National Municipal League.**—Invitations are being issued to hundreds of publicists and municipal experts of the country for the sixteenth yearly meeting of the National Municipal League. This will be held in Cincinnati November 15 to 18, in conjunction with the regular convention of the American Civic Association. Owing to the increasing general interest in problems of municipal administration and civic improvement, as well as in the progress noted in many parts of the country, the sessions of the two organizations will form one of the most important conferences of the year. Every State and important city will be represented in the Cincinnati meeting, the 1,600 active members of the league including many public officers and prominent workers in the cause of good government. Direct nominations, public health, the commission form of municipal administration, municipal budgets and research, immigration and the relation of the liquor question to municipal affairs are some of the themes of the discussions, and, in a general way, the meetings will be a sort of clearing house for an interchange of present day practical ideas. It is expected that the proceedings will attract even greater interest throughout the country than did those of the Pittsburgh meeting last November. This will be the first time the National Municipal League has held its yearly meeting in Cincinnati, and various local organizations are preparing for the appropriate entertainment of the delegates. The National Municipal League was formed in 1894, the outcome of the Philadelphia conference for good government. Its membership has grown steadily, until to-day the active members number more than 1,600 men and women, drawn from every municipality between the two oceans. There are also 181 local associations affiliated with the National League, the aggregate membership of these being in excess of 164,000. This affords some idea of the National Municipal League's position as a factor in municipal progress. Ex-Attorney-General Charles J. Bonaparte, of Baltimore, is president of the league. His address in the opening session of the Cincinnati meeting will be an important feature. Clinton Rogers Woodruff is the league's secretary, and his review of the year, "The American Municipal Situation," covering the whole country, will be a concrete report of the work of the last 12 months. Other officers of the league are: First vice-president, Charles Richardson, Philadelphia; second vice-president, Thomas N. Strong, of Portland, Ore.; third vice-president, ex-Judge Henry L. McCune, of Kansas City; fourth vice-president, Walter L. Fisher, of Chicago; fifth vice-president, ex-Mayor George W. Guthrie, of Pittsburg; treasurer, George Burnham, Jr., Philadelphia. Horace E. Deming, of New York City, is chairman of the executive committee, which consists of prominent workers of the country, and includes George Haven Putnam, M. N. Baker, of the "Engineering News," and Norman Hapgood, of "Colliers," of New York; Morton D. Hull, of Chicago; Robert Treat Paine, Jr., Harvey Stuart Chase, of Boston; Albert Bushnell Hart, of Harvard; former Mayor James Phinney Baxter, of Portland, Me.; Charles S. De Forest, of New Haven; Frank J. Symmes, of the Merchants' Association, San Francisco; Charles D. Willard, of Los Angeles; Erastus Brainerd, of the "Post Intelligencer," Seattle; John A. Butler, of Milwaukee; former Mayor David P.

Jones, of Minneapolis; J. L. Hudson, of Detroit; Elliott Hunt Pendleton, of Cincinnati; Ernest C. Kontz, of Atlanta; Dwight F. Davis, of St. Louis; William P. Bancroft, of Wilmington, Del.; Charles H. Ingersoll, of Orange, N. J.; H. D. W. English, of Pittsburg; Oliver McClintock, of Pittsburg; J. Horace McFarland, of Harrisburg; Merwin K. Hart, of Utica; Frederick Almy, of Buffalo; William G. Low, of Brooklyn; Clarence L. Harper and Thomas Raeburn White, of Philadelphia. Adhering strictly to the purposes of advancing the better government of American municipalities, the National Municipal League's work has been wholly educational and non-partisan in every sense. Its policy has been constructive, the finding of the cause and the suggesting of the remedy. The league advocates co-operative action, a combination of the forces of all who realize that only by this means can there be obtained the enactment of good laws and selection of men of trained ability and proved integrity for municipal positions. One of the strongest points in evidence of the league's constructive work has been its "Municipal Program," which contains many suggestions incorporated in whole or in part in the charters of various municipalities. So generally is the league recognized as an agency in municipal affairs that its co-operation has been sought by 138 cities within the last two years, these including most of the large cities of the United States. It was the National Municipal League which first gave wide publicity to the Galveston form of commission government, now being generally discussed. The league has been an earnest advocate of simplicity of system with a concentration of authority and responsibility, toward which there is such a strong tendency. Likewise, it has championed the demand for "municipal home rule." What has been done in these movements, as well as the general progress of communities, will be told in the Cincinnati meeting.

**American Civic Association.**—The fifth annual convention will be held in Cincinnati, O., November 15-18, in conjunction with the fifteenth annual meeting of the National Municipal League. Papers will be presented on the conservation of natural resources. Among the subjects to be discussed are forestry, the smoke nuisance and the preservation of the scenic beauty of places such as Niagara Falls and the Yosemite Valley.

**League of Iowa Municipalities.**—The twelfth annual convention was held at Fort Dodge September 21-23. Mayor S. J. Bennett welcomed the visitors, and T. L. Phillips, of Ottumwa, responded. Among the topics discussed were: Terminal taxation of railroads, publicity in control of public utilities, street lighting, water rates, street paving and municipal control of shade trees. The following officers were elected: President, Mayor S. J. Bennett, Fort Dodge; vice-president, Mayor S. L. Charles, Le Mars; secretary, Frank G. Pierce, Marshalltown, re-elected by acclamation. Charles B. Huston, Cedar Rapids, was elected to fill a vacancy in the board of directors. The next convention will be held in Waterloo.

**American Institute of Electrical Engineers.**—At the meeting in the Engineering Societies Building, New York, N. Y., October 8, J. B. Taylor, Schenectady, N. Y., will present a paper on "Telegraph and Telephone Systems as Affected by Alternating Current Lines."

**Engineers' Society of Western Pennsylvania.**—The fall meeting of the structural section at Pittsburgh, Pa., September 7, was devoted to the discussion of contracts with special reference to structural steel work. Specially prepared discussions were given as follows: "Liabilities for Uncompleted Contracts," "Penalties and Bonuses" and "Damages for Failure to Complete," W. B. Adair, attorney; "Liability for Damages During Construction," H. M. Stilley, attorney; "Arbitrations," S. A. Schreiner, attorney; "Payments," L. J. Affelder, contract manager for the American Bridge Company. Several engineers and architects discussed the relations of parties interested in a contract, giving forms of contracts of unusual merit. At the meeting of the society held September 21 W. W. Macfarren presented a paper on "The Possibilities of the Commercial Automobile."

**American Society of Mechanical Engineers.**—The first monthly meeting of the society for 1909-1910 will be held in the Engineering Societies Building, New York, on Tuesday evening, October 12, at 8 p. m. A paper will be presented by Prof. R. C. Carpenter, of Cornell University, upon "The High-Pressure Pumping System of New York City." There are two pumping stations comprised in this system which receive power transmitted electrically from several of the electric generating plants of the city. There are five pumping units in each station, consisting of five-stage centrifugal pumps driven by induction motors. Each pump has a capacity of 3,000 gallons per minute, and delivers against a pressure of 300 pounds per square inch in the mains. The first high-pressure pumping system for fire protection was one with steam-driven pumps, completed at Detroit in 1888. Besides the New York system, there have recently been completed, or are under construction, similar plants at Philadelphia, Brooklyn, Boston and Baltimore. It is expected that the discussion following the paper will not only bring out information upon these systems, but will also lead to a general presentation of the subject of centrifugal pumps.

**International Tax Association.**—At the annual meeting of the association an organized attack on what is termed Federal usurpation of State revenues was the principal topic on the programme. The attack on Federal taxation was led by Allen R. Foote, Columbus, O., who framed a resolution placing the association on record in opposition to both the corporation and the income tax measures. Charles J. Bullock, professor of economics, Harvard University, spoke in favor of a classified property tax; that is, a lower rate of taxation for different classes of personal property than for real estate. The average rate of taxation, 2 per cent, is so heavy that it will not be paid by any property owners that can manage to escape. The obvious remedy is to classify property for taxation and adjust the rate on each class to what the property can bear.

**Des Moines Plan Charter Association of Buffalo, N. Y.**—The executive committee of the association has voted to get up a poster for distribution which will direct attention to the Des Moines form of charter to be voted on at the municipal election. There are 20,000 copies of the poster to be printed in English, 10,000 in German, and 5,000 each in Polish and Italian.

## Calendar of Meetings

- October 4-8.**  
American Street and Interurban Railway Association. — Annual convention, Denver, Col.—B. S. Swenson, Secretary, 29 W. 39th St., New York, N. Y.
- October 7.**  
League of Virginia Municipalities. — Fourth annual meeting, Staunton.—J. Davis Reed, Portsmouth, President; L. C. Brinson, Portsmouth, Secretary.
- October 7-8.**  
Conference of Local Health Officers of Texas.—Austin.—Health Officer Brumby, State Board of Health.
- October 14-15.**  
Alabama Good Roads Association. — Convention, Birmingham, Ala.—J. A. Rountree, Secretary, Birmingham, Ala.
- October 19.**  
American Railway Bridge and Building Association. — Annual convention, Jacksonville, Fla.—F. S. Patterson, Secretary, Concord, N. H.
- October 19-22.**  
American Public Health Association. — Annual convention, Richmond, Va.—Charles O. Probst, Secretary, Columbus, O.
- October 20.**  
American Gas Institute. — Annual meeting, Detroit, Mich.—A. B. Beadle, Secretary, 29 W. 39th St., New York, N. Y.
- October 26-29.**  
National Roadmakers' Association. — Annual Convention, Columbus, O.
- October 29-30.**  
American Electro-Chemical Society. — Annual meeting, New York, N. Y.—Jos. W. Richards, Secretary, South Bethlehem, Pa.
- November 3.**  
Lakes-to-Gulf Deep Waterway Convention. — Convention, New Orleans, La.
- November 9-11.**  
American Society of Municipal Improvements. — Annual convention, Little Rock, Ark.—A. Prescott Folwell, Secretary, 241 W. 39th St., New York, N. Y.
- November 15-18.**  
American Civic Association. — Fifth annual convention, Cincinnati, Ohio.
- November 15-18.**  
National Municipal League. — Annual meeting, Cincinnati, O.—Clinton Rogers Woodruff, Secretary, 705 North American Building, Philadelphia, Pa.
- December 3-4.**  
New Jersey Sanitary Association. — Annual meeting, Lakewood, N. J.—J. A. Exton, Secretary, 75 Beach st., Arlington, N. J.

## PERSONALS

ALVERSON, JAMES, Spokane, Wash., District Engineer in the City Engineer's Department, has resigned to accept a position with a Seattle contracting company.

BENNETT, NELSON, Tacoma, Wash., has resigned his position as President, Manager and Member of the Metropolitan Park Board of Tacoma. J. H. Hadkinson, Superintendent, will assume the duties of manager.

BOLTON, FRANK I., Rochester, N. Y., at one time assistant in hydraulic investigations at the University of Michigan, has become a member of the hydraulic engineering staff of the Rochester (N. Y.) Railway & Light Company.

CLINE, M., Vacaville, Cal., Street Superintendent, has been elected Town Marshal, succeeding R. Cannon, resigned.

COX, J. P., Sherman, Tex., has been elected City Attorney, succeeding O. D. McReynolds, resigned.

CRAIG, W. J., Victoria, Tex., has been elected Mayor to fill the unexpired term of J. H. Schneider, who died some weeks ago, his opponents being E. L. Dunlap and August Klein. Other officers elected were: M. J. Williams, Jr., Clerk and Treasurer; Fred Allen, Tax Collector and Marshal.

DOLL, CAPTAIN CHARLES, Milwaukee, Wis., has been elected by the Fire and Police Commission of Fond du Lac, Wis., as Chief, with a salary of \$1,500 a year. Captain Doll succeeds C. F. Cleveland, who retires because of infirmity.

DURBIN, W. H., Sandusky, O., superintendent and chemist of the water filtration plant, has resigned to accept a position

with J. W. Alvord, consulting engineer, Chicago. Mr. Durbin will be succeeded by W. S. Scott.

GAZLAY, WEBSTER, Louisville, Ky., associate engineer of the Louisville Water Company, has resigned after two and a half years' service. In accepting his resignation, the Board of Water Works paid Mr. Gazlay high testimonials, and ordered that same be spread upon the records.

HALL, WILLIAM E., Springfield, Mo., President of the Business Men's Club, and formerly Mayor of Springfield, died September 24.

HALLADAY, DANIEL S., St. Louis, Mo., has been appointed Engineer for the Good Roads Advisory Committee, which is supervising the expenditure of \$3,500,000 in road improvement by the Board of Supervisors and the Highway Commission.

HANCOCK, PROF. EDWARD L. recently of Purdue University, has joined the faculty of the Worcester Polytechnic Institute as professor of applied mechanics and strength of materials.

HORTON, GEORGE, Crowley, La., has resigned as City Clerk, and John McIlhenry has been elected to succeed him.

MARTIN, CLYDE H., Traverse City, Mich., City Engineer, has resigned. Mr. Martin also held the position of County Surveyor of Laporte County, Ind.

MCCOY, JAMES, Alderman of Jersey City, N. J., died September 27, aged 36 years.

MCCORMICK, JOHN J., South St. Paul, Minn., Chief of Police, has resigned, and Paul Braun, a member of the force, succeeds him.

MCCROSKERY, JOHN J. S., Newbury, N. Y., formerly mayor, died September 18.

MAYHOOL, J. BARRY, Baltimore, Md., has appointed the following members of the Charter Commission: Former City Solicitor William Cabell Bruce, Edwin G. Baetjer, Dr. William H. Welch, Joseph Packard, George R. Gaither, David Hutzler, Louis M. Duvall, B. Howell Griswold, Jr., and Waldo Newcomer.

MILLER, CHARLES, Mayor of Lakeview, O., died September 25, aged 50 years.

MOORE, J. C., Indianapolis, Ind., has been appointed City Chemist, succeeding Fred W. Clarke, resigned.

MORRISON, FRANK A., Indianapolis, Ind., of the Board of Health, is a candidate for the Board of School Commissioners. It is believed that his knowledge of sanitation and hygiene will make him specially useful in that Board.

MOTT, WILLIAM E., associate professor of hydraulic engineering in Massachusetts Institute of Technology, Boston, has been appointed head of the Department of Civil Engineering in the Carnegie Technical Schools, Pittsburgh, succeeding Prof. F. E. Foss, resigned.

NAGER, D. W., Sandusky, O., Assistant City Engineer, has resigned to accept a position with the American Bridge Co., Chicago.

O'NEILL, JOHN, Chicago, Ill., father of the comprehensive track elevation scheme in that city, died on September 26.

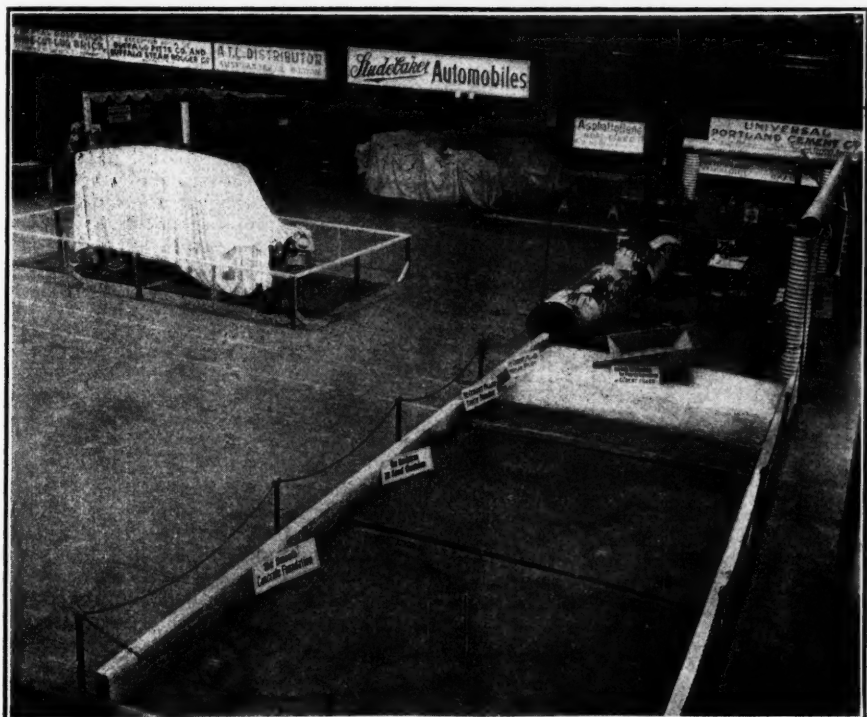
PALMER, CHARLES DANA, Lowell, Mass., member of the Board of Conciliation and Arbitration and formerly Mayor, died September 25.

REYNOLDS, B. B., Colorado Springs, Col., has been elected Water Superintendent.

SWAIN, PROF. GEORGE F., Cambridge, Mass., has assumed his duties as professor of civil engineering in the Graduate School of Applied Science, Harvard University, and his address is now Pierce Hall, Oxford Street, Harvard University, Cambridge, Mass.

SWISHER, G. M., Chambersburg, Pa., Chief of Police, has resigned.





VIEWS AT GOOD ROADS EXHIBIT, CLEVELAND

## MUNICIPAL APPLIANCES

### Good Roads Convention Exhibit

The leading feature of the exhibit at the National Good Roads Convention, at Cleveland, O., September 21-23, was that of the National Paving Brick Manufacturers Association. The part played by the paving brick people marks the advent of an earnest organized effort to introduce the general use of paving brick on highways outside of cities. Several counties in a number of States have already done considerable brick paving. Cuyahoga County, Ohio, for example, has completed or has under construction about 200 miles of brick-paved country highways. The County Engineer, A. B. Lea, has just issued a complete pamphlet giving cuts and detailed data regarding this work. The argument for brick highways has been stated by Will P. Blair, secretary of the National Paving Brick Manufacturers Association, as follows:

They are the most economical.

They are the most satisfactory in use.

Their proper construction in all its details is easily understood.

Although they cost one-fourth to one-third more than macadam highways treated with tar or asphalt the cost of maintenance is less, making brick highways more economical when figured over a term of years.

A brick road constructed in Washington County, Ohio, was built for \$11,500 a mile. The financial considerations of this proposition are as follows: This cost amounts to \$10 an acre of each section on either side of the road. The interest charge for such a road per acre is less than 50 cents annually. It is figured that if the farmer has a good road to haul his grain to the market he can secure a price of 10 cents a bushel on wheat more than if he has to wait until the road is in good condition. The advantage is even greater in the case of corn, and is estimated at from \$2.50 to \$4.50 per acre year, making the construction of a brick highway, under the assured conditions, a very profitable undertaking.

The most important feature of vitrified brick roadways is their proper construction in all details, and these are no mystery but are well established by many years of practice. The type of road itself may be changed to conform to the necessity of travel, but, for the ordinary county highway, a wearing surface of brick ranging from 8 to 14 feet in width is entirely sufficient.

At the Convention the National Paving Brick Manufacturers Association had a fine exhibit showing the proper method of building a brick street or wall and also had samples of paving brick from all sections of the country. The officers and all the field representatives of the Association were present, and many of the sales representatives of paving brick companies were in attendance. Along with the sample section of brick pavement shown in other different stages of construction was the grouting box recommended for use to insure application of cement filler. The grout is to be stirred up from the bottom with a shovel and transferred to place.

The American Asphaltum and Rubber Company, 219 Woman's Temple, Chicago, Ill., had an interesting exhibit, a reproduction of which is here given. They had on exhibit in their booth a box containing a sample of vitrified brick pavement, with inter-

stices filled with their "Pioneer" filler asphalt. A completed section of waterproof macadam roadway, using "Pioneer" asphalt as binding material was shown. In another box was a section of pavement showing the different stages of building up waterproof macadam roadways. Contrasting with these in another case was a sample of ordinary water-bound macadam roadway, which was full of ruts and holes similar to a pavement of this kind which has been subjected to traffic for a few months where no binding material is used.

#### The Roberts Intersection Valves

THE valve shown in the illustration is made with three or four outlets, as required, and was designed to give control of the flow in all directions at an intersection of street mains. A sufficient number of valves to properly control the supply and enable the repairing of breaks in mains without inconveniencing a large number of people is, in most of the average small systems, a serious item of the costs.

In the Roberts valve each outlet is controlled by a separate gate and stem, all within the one valve, using one large valve box, thus eliminating two or three valve boxes, the cross or tee and a number of pipe joints, and the labor involved in placing these—a considerable reduction in expense.

The sectional view shows the operation of the valve. The gates are confined in their positions by the four vertical guides in the corners, these gates rising and falling on the stems, which are of the non-rising type, equipped with gland and stuffing box, each held by nuts on the tee head bolts in the hood of the valves.

The operation is simple. The gate and gate disc are lowered by the turning of the screw until the disc reaches the stops, when it is opposite the seat, in position for closing, the gate continuing downward until the tapered faces force the disc against the seat, closing the valve. There is, as can be plainly seen, no wearing action on the brass surfaces of the disc and seat in closing the valve. The action of all outlets is the same, the stems being right or left-hand threads, as desired. The threads, being the Acme thread, do not bind in operation.

Various combinations of outlets are made; thus, a valve may have 12-inch mains with 6-inch, 8-inch or 10-inch side outlets. The construction is of the best; the body and the gates are cast-iron, the stems being of bronze, as are the seats and faces of the gate discs. In the larger sizes for heavier service the gates are of steel.

These valves are being tried at various points. A number were placed in the extensions at Garfield, N. J., in the fall of 1908. They are also in use in the sewage disposal plant at the House of Refuge for Girls, Glen Mills, Pa., and a special valve having four outlets for 12-inch pipe with a 6-inch bottom blow-off has recently been installed by the Water Department at Reading, Pa. Valves have also been shipped to Washington, D. C.; Roanoke, Va., and Jamestown, N. Y. A valve was exhibited at the recent convention of the American Water Works Association at Milwaukee and received favorable comment.

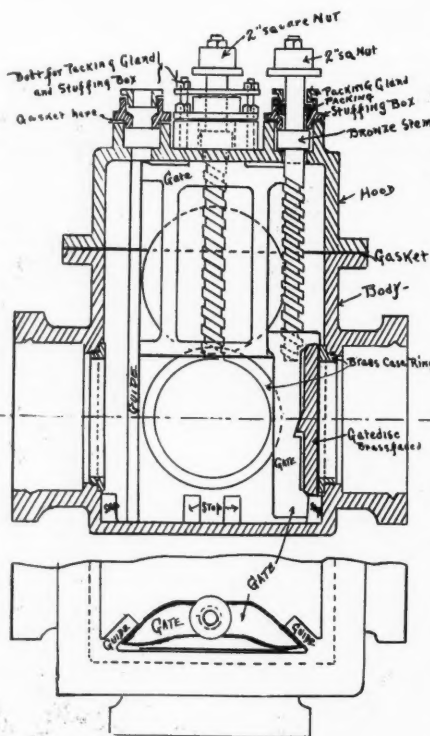
They are manufactured by Howard S. Roberts, Harrison Building, Philadelphia, Pa., who will send descriptive matter on request.

## TRADE NOTES

**Cast-Iron Pipe.**—Chicago: Market is firmer, in line with the advancing prices of pig iron. Quotations: 4-inch, \$28; 6 to 12-inch, \$27; 16-inch and up, \$26. Birmingham: General inquiry has improved, and the aggregate of small orders placed for maintenance and extensions is very attractive. All local plants are operated to full capacity. Market is considered to be in a very healthy condition. Quotations: 4 to 6-inch, \$26; 8 to 12-inch, \$25; over 12-inch, average \$24. San Francisco: There is little probability that any of the larger projects in prospect will be ready for figuring before the first of the year. New York: It is now impossible to secure carload lots of 6-inch at less than \$24.50 at tidewater. Some founders quote \$25.50.

**Lead.**—Lean can be had from outside interests in New York for 4.37½c., although the American Smelting & Refining Company is charging 4.40c. But little lead is being bought, and it is so freely offered that the market price is quoted as that asked by the outside interests. In St. Louis plenty of lead can be had from outside parties at 4.25c.

**Valves.**—The Caskey Valve Company, Holmesburg, Philadelphia, Pa., manufactures pressure-packed valves in the following classes: Blow-off valves, steam valves, hydraulic stop valves, hydraulic single operating valves, hydraulic two-pressure valves, hydraulic four-way valves and air valves. The points of superiority claimed for these valves are: The valve becomes tighter with increased pressure. It is positive in its action, having a straight—not tapered—plug, the valve cannot stick. It gives a straight, uninterrupted flow without change of direction, which gives full area of pipe through the valve. Cost of maintenance low; the seat being protected at all times, the flow passes through—not on or across—the seat. Simplicity in construction; no stuffing boxes.



ROBERTS FOUR-WAY VALVE

**Sewer Excavator.**—A sewer excavator constructed by the Municipal Engineering and Contracting Company, Railway Exchange, Chicago, Ill., used by Julius Friedrich & Co. in digging a sewer at Portland avenue and Norton street, Rochester, N. Y., is attracting a good deal of attention. Among the list of one day's visitors were City Engineer Fisher, Assistant City Engineer Grant, Engineer Raymond, Deputy Commissioner of Public Works Schlenker and Aldermen Schafer and Simpson. The machine is one of the largest made by the company, and is the first one of its kind ever seen in Rochester. It weighs 38 tons, cost \$10,500, will dig a trench 28 feet deep and will make an average of from 50 to 75 feet an hour. The first day the machine was in operation it dug a trench 400 feet long and about 10 feet deep through hardpan and shale rock.

**Sewer Pipe Plant.**—Work has been started on the \$300,000 sewer pipe factory to be built on the Oregon Railway and Navigation Company's tracks, adjoining the east city limits of Spokane, by the Washington Brick, Lime and Sewer Pipe Company. The company was formed by the merger of the Washington Brick, Lime and Manufacturing Company and the Spokane Sewer Pipe Company. The last-named company was formed by Iowa men, who recently went to Spokane. The merged company is capitalized for \$2,000,000. The site contains 16 acres and 150 men will be employed.

**Big Pipe Contract.**—Announcement has been made that the Spang-Chalfant Company, Pittsburg, Pa., has been awarded a contract by the Consumers' Light and Heat Company for 110 miles of 12-inch and smaller line pipe to be laid from the Henrietta gas field of Texas to Fort Worth. The company also received another contract from Western gas interests for 30 miles of 16-inch pipe. The two contracts call for 4,500 tons of pipe, valued approximately at \$270,000.

**Rubber Tires for Fire Apparatus.**—The Firestone Tire and Rubber Company, Akron, O., has published in a neat booklet an address by Fred Morrison, Chief Engineer of the Watertown, N. Y., Fire Department, before the International Association of Fire Engineers in Grand Rapids, Mich., on "Rubber Tires for Fire Apparatus." Among the chief advantages mentioned are these: Rubber tires insure quicker runs, are easier on horses, prolong the lives of men, horses and apparatus, give better control of apparatus under speed, guard against accident, prevent vibration while turning, keep down repair bills, prevent jarring of bearings and pay for themselves in five years.

**Lock Bar Pipe.**—The Fraser Lock Bar Pipe Company, 50 Church street, New York City, has elected the following officers: President, C. J. McDowall; vice-president, John Fraser; secretary and treasurer, A. W. Krouse; directors, the foregoing officers and George P. Bard and R. T. McCormick.

**Steel Reinforcement.**—The Trussed Concrete Steel Company, Detroit, Mich., has published the third edition, revised and enlarged, of their handbook. Considerable matter has been added, such as tables on Rib Metal, Hy-Rib and Rib-Lath and estimating tables.

**Recording Instruments.**—The Bristol Company, Waterbury, Conn., has established a branch office in the Frick Building Annex, Pittsburg, Pa.



## THE MUNICIPAL INDEX

In Which Are Listed and Classified by Subjects All Articles Treating of Municipal Topics Which Have Appeared During the Past Month in the Leading Periodicals

It is our purpose to give in the first issue of each month a list of all articles of any length or importance which have appeared in all the American periodicals and the leading English, French and German ones, dealing more or less directly with municipal matters. The index is kept up to date, and the month of literature covered each time will be brought up to within two or three days of publication. Our chief object in this is to keep our readers in touch with all the current literature on municipal matters. In furtherance of this we will furnish any of the articles listed in the index for the price named after each article. Except that where an article is continued in two or three issues of the paper, the price given is for each of said issues. In addition to the titles, where these are not sufficiently descriptive or where the article is of sufficient importance, a brief statement of its contents is added. The length also is given, and the name of the author when it is a contributed article.

### ROADS AND PAVEMENTS

**Road Improvement Bill.** Proposed Board and Its Powers. 2 pp., Surveyor, Sept. 3. 2 1-2 pp., Sept. 17. 20 cts.

**Road Improvement.** By A. W. Campbell. 3 pp., Municipal World, September. 10 cts. Some Road Problems. 1 p., Engineering Record, Aug. 28. 10 cts.

**Highway Economics.** By E. P. Powell. 4 pp., The Independent, Aug. 26. 10 cts. Cost of Pavements. 3 pp., Municipal Engineering, September. 25 cts.

**Increase in Road Expenditure.** By R. J. Thomas. 1 1-2 pp., Surveyor, Sept. 3. 20 cts.

**Experimental Roads** in New York. 1-4 p., Municipal Journal and Engineer, Sept. 8. 10 cts.

**Data on Road Surface Treatment** Needed. 1-3 p., Municipal Journal and Engineer, Sept. 22. 10 cts.

**Lincoln Park Road Experiments.** Graded macadam, oils and emulsions, chlorides, asphalt grouting, asphalt macadam. Illustrated. 1 p., Municipal Journal and Engineer, Sept. 22. 10 cts.

**Sub-Grade Preparation in Road Construction.** Paper before American Congress of Road Builders. By J. H. MacDonald. 3-4 p., Engineering-Contracting, Sept. 22; 10 cts. 2 pp., Good Roads, September. 10 cts.

**Gravel, Building a County Road of.** Illustrated. 1 1-2 pp., Contractor, Sept. 15. 20 cts.

**Macadam Construction, Some Features of.** By A. N. Johnson. 2 pp., Good Roads, September. 10 cts.

**Stone Road Construction at Monon, Ind.** Illustrated. 1 p., Contractor, Sept. 1. 20 cts.

**Automobile Traffic, Cost of Adapting Macadam Roads to.** By Harry Tipper. 2 pp., Municipal Engineering, September. 25 cts.

**Dust Suppression on Boston Parkways.** By W. A. Pettigrew. 1 p., Western Municipal News, August. 10 cts.

**Dust-Laying Methods.** 1 p., Municipal Journal and Engineer, Sept. 22. 10 cts.

**Tarring Roads, Bad Management in.** Illustrated. 1-4 p., Municipal Journal and Engineer, Sept. 22. 10 cts.

**Tar and Its Uses in Modern Road Construction.** By E. P. Hooley. 2 pp., Good Roads, September. 10 cts.

**Mixing Plants for Bituminous Macadam Roads.** Description of methods, costs and machinery in England. Illustrated. 4 pp., Municipal Journal and Engineer, Sept. 22. 10 cts.

**Hand Mixing for Bituminous Macadam Construction.** Illustrated. 2 pp., Good Roads, September. 10 cts.

**Asphalt Macadam Roadways.** Paper before First American Congress of Road Builders. By Clifford Richardson. 1 p., Good Roads, September. 10 cts.

**Repaving Michigan Avenue, Chicago.** Illustrated. 2 pp., Municipal Journal and Engineer, Sept. 15. 10 cts.

**Petrolithic Road, Two Examples of.** Illustrated. 2 pp., Good Roads, September. 10 cts.

**Unsatisfactory Experience with Petrolithic Pavements.** Illustrated. 3 pp., Engineering News, Sept. 23. 15 cts.

**Testing Bituminous Materials for Road Construction.** Analyses and Methods of. 2-3 p., Engineering News, Sept. 23. 15 cts.

**Lists of Analyses and Methods of Testing Bituminous Materials Proposed by American Society of Civil Engineers.** 2-3 p., Engineering-Contracting, Sept. 1. 10 cts.

**Road Materials and Some Simple Rules for Testing Them.** Paper before First Congress of Road Builders. By A. B. Fletcher. 1 2-3 pp., Engineering-Contracting, Sept. 1. 10 cts.

**Culverts, Concrete Highway.** Instructions for designing and constructing culverts, of plain and reinforced concrete of all spans. Illustrated. 3 pp., Municipal Journal and Engineer, Sept. 22. 10 cts.

**Cost of Concrete Arch and Culvert Construction.** 1 1-2 pp., Contract Record, Sept. 22. 10 cts.

**Paving Practice in Chicago with Respect to Crown of Roadway, Pavement Foundation and Wood Block Paving.** Illustrated. 2 1-2 pp., Engineering-Contracting, Sept. 8. 10 cts.

**Review of Chicago Paving Practice.** By P. E. Green. Illustrated. 33 pp., Proceedings American Society of Civil Engineers, August. 50 cts.

**Some Features of Paving Material.** By W. M. Brown. 1 p., Canadian Engineer, Aug. 27. 15 cts.

**Belgian Block Pavement at Baltimore.** Cost of Constructing. Illustrated. 12-3 pp., Engineering-Contracting, Sept. 22. 10 cts.

**Wood Block Street Paving Creosoted.** Paper before First American Congress of Road Builders. By Andrew Rinker. 1 p., Contractor, Sept. 1. 20 cts.

**Methods of Constructing Wood Block Pavement in England.** By M. B. Bennett. Illustrated. 1 p., Engineering-Contracting, Aug. 25. 10 cts.

**Wood Paving in Kensington, England.** By Wm. Weaver. 1-2 p., Engineering News, Sept. 2. 15 cts.

**Asphalt and Wood Block Compared.** Information from 14 European and 14 American Cities. 1 p., Municipal Journal & Engineer, Sept. 1. 10 cts.

**San Francisco's Asphalt Plant.** Record of work in July. 1-4 p., Municipal Journal & Engineer, Sept. 1. 10 cts.

**Brick Pavement, Tar Filler-in.** Illustrated. 1-3 p., Municipal Journal and Engineer, Sept. 8. 10 cts.

**New Paving Brick Specifications.** By G. B. McGrath. 1-2 p., Municipal Journal and Engineer, Sept. 15. 10 cts.

**Qualities of Paving Brick.** From Bulletin Illinois Geological Survey. By A. N. Talbot. 2 1-2 pp., Brick, September. 10 cts.

**Vitrified Brick, Its Construction and Manufacture.** By T. W. Kummer. 3 pp., Good Roads, September. 10 cts.

**Concrete Roadways.** By Ernest McCulloch. 3 pp., Engineering-Contracting, Sept. 1. 10 cts.

**Boulevards in Dubuque, Ia.** Illustrated. 1-2 p., Municipal Journal and Engineer, Sept. 29. 10 cts.

**Philadelphia's Parkway.** 1-2 p., Municipal Journal and Engineer, Sept. 29. 10 cts.

**Sidewalk and Curb Design and Construction.** Illustrated. 6 pp., Municipal Engineering, September. 25 cts.

**Sidewalk Ordinance and Specifications Adopted at Beaver Falls, Pa.** 2-3 p., Municipal Journal and Engineer, Sept. 15. 10 cts.

**Sub-Sidewalk Space, Use of.** 1-4 p., Municipal Journal and Engineer, Sept. 8. 10 cts.

### SEWERAGE AND SANITATION

**Sewer Construction at Jackson, Mich.** Use of reinforced concrete pipe, built in street. Illustrated. 3 pp., Municipal Journal and Engineer, Sept. 29. 10 cts.

**Hammer Drills Applied to Rock Excavation and Sewer Construction at Bloomington, Ind.** By G. L. Thon. Illustrated. 1 1-2 pp., Engineering News, Sept. 9. 15 cts.

**Comparative Advantages of Day Labor and Contract Sewer Construction.** 2 1-2 pp., Engineering-Contracting, Aug. 25. 10 cts.

**Comparative Efficiency and Cost of Brick Mason Work by Contract and by Day Labor in Sewer Construction.** 2-3 p., Engineering-Contracting, Sept. 22. 10 cts.

**One-Fifth of the Money Spent in Sewer Work in Boston Wasted.** 3-4 p., Engineering-Contracting, Sept. 22. 10 cts.

**Some Methods of Sewer Tunneling in Cities.** Illustrated. 4 1-2 pp., Engineering-Contracting, Sept. 15. 10 cts.

**Joints in Sewers, Water Tight.** 1-2 p., Engineering-Contracting, Aug. 25. 10 cts.

**Concrete vs. Brick for Sewers.** 1-4 p., Municipal Journal and Engineer, Sept. 15. 10 cts.

**Sewer Block in Davenport, Hollow.** Illustrated. 1-3 p., Municipal Journal and Engineer, Sept. 29. 10 cts.

**Sewer Design met with in Manila, Problems of.** By R. G. Dieck. 1 p., Engineering-Contracting, Sept. 15. 10 cts.

**Sewerage System of Manila.** 1-3 p., Engineering Record, Sept. 18. 10 cts.

**Storm Water Flow Problem.** From paper before American Society of Civil Engineers. By C. E. Grunsky. Illustrated. 4 pp., Engineering-Contracting, Sept. 8. 10 cts.

**Catch Basins in Boston and Worcester.** Methods and Costs of Cleaning. 1 1-2 pp., Engineering-Contracting, Sept. 15. 10 cts.

**Some Observations on Catch Basins and Their Value as Sewer Adjuncts.** 1 p., Engineering-Contracting, Sept. 15. 10 cts.

**Outfall Sewers, Three English Sea.** Illustrated. 1 2-3 pp., Engineering Record, Aug. 28. 10 cts.

**Sewerage Contract Decision, Important.** 1 1-4 p., Municipal Journal and Engineer, Sept. 29. 10 cts.

**New Orleans Sewerage Litigation.** 1-2 p., Engineering Record, Sept. 18. 10 cts.

**Flushing and Ventilation, Sewer, Experiments in Winnipeg, Man.** 3-4 p., Municipal Journal and Engineer, Sept. 15. 10 cts.

**Sanitary Significance of Bacteria in the Air of Drains and Sewers.** Report to the National Association of Master Plumbers. By C. E. A. Winslow. 2 pp., Engineering News, Sept. 2. 15 cts.

**Sewer Gas not the Cause of Disease.** Communication from Rudolph Hering. 1-3 p., Engineering News, Sept. 16. 15 cts.

**Plumbing in New Orleans.** 2-3 p., Municipal Journal and Engineering, Sept. 15. 10 cts.

**Sewage Disposal.** Removal of Putrescibility. Illustrated. 2 pp., Canadian Engineer, Sept. 17. 15 cts.

**Modern Aspects of Sewage and Water Purification.** 1 p., Engineering-Contracting, Aug. 25. 10 cts.

**Present Tendencies in Sewage Purification.** 2-3 p., Engineering-Contracting, Sept. 1. 10 cts.

**Sutton Sewage Works.** From paper before Association of Managers of Sewage Disposal Works. By C. Chambers-Smith. Municipal Journal, Aug. 20. 15 cts.

**Toronto Purification Works.** Illustrated. 2 pp., Engineering Record, Sept. 18. 10 cts.

**Durham, Maine, Sewage Works.** By H. W. Taylor. Paper before Institution of Municipal Engineers. Illustrated. 2 1-2 pp., Surveyor, Sept. 3. 20 cts.

**Sewage Disposal Plant at Seneca Falls, N. Y.** Illustrated. 1 p., Engineering Record, Sept. 11. 10 cts.

**Filtration, Land Intermittent.** 1 p., Canadian Engineer, Aug. 27. 15 cts.

**Septic Tanks, Regarding.** By A. Laveran. Illustrated. 7 pp., La Technique Sanitaire, September. 50 cts.

**Ilford Sewage Disposal.** Chemical precipitation changed to septic tanks. Illustrated. 1 1-2 pp., Municipal Journal and Engineer, Sept. 1. 10 cts.

**Sludge Disposal at Brockton, Mass.** 1-3 p., Engineering News, Sept. 2. 15 cts.

**Sprinkling Filter at Reading, New.** Illustrated. 3 pp., Engineering Record, Sept. 25. 10 cts.

**Contact Beds and Percolating Filters.** Comparison of. Illustrated. 1 p., Engineering News, Sept. 9. 15 cts.

**Sedimentation Basin.** Goderich. By J. G. MacGregor. Illustrated. 2 pp., Engineering Record, Sept. 4. 10 cts.

**Hampton Doctrine, The.** Communication from Rudolph Hering. 2-3 p., Engineering Record, Sept. 4. 10 cts.

**Emascher Tank for Sewage Disposal.** Illustrated. 1 1-3 pp., Engineering Record, Aug. 28. 10 cts.

**New Method of Treating Sewage.** By K. Imhoff. 3 pp., Engineering Digest, August. 20 cts.

**Sterilizing Sewage Effluents.** Advantages of Chlorine Treatment. 3-4 p., Municipal Journal and Engineer, Sept. 1. 10 cts.

**Bronx and Passaic Sewers.** Report on. 1-4 p., Municipal Journal and Engineer, Sept. 22. 10 cts.

**Health Officers of New York State.** Letter to, from State Board of Health. 1 1-2 pp., Bulletin New York State Department of Health, August. 10 cts.

**Duties of Township Health Officer.** Paper before Conference Ohio Boards of Health. By P. M. Lehman. 2 1-2 pp., Bulletin Ohio State Board of Health, April-June. 10 cts.

**State Board of Health Aid in Designing Sewage and Water Purification Systems.** 2-3 p., Engineering News, Sept. 2. 15 cts.

**Municipal By-Laws and General Health Regulations.** 2 1-2 pp., Western Municipal News, September. 10 cts.

**Teaching Hygiene and Sanitation in the**

Public Schools. Paper before Conference Ohio Boards of Health. By G. L. Chapman. 2 pp., Bulletin Ohio State Board of Health, April-June. 10 cts.

One Million Children Under Sentence of Death. Illustrated, 1 p., Bulletin Indiana State Board of Health, July. 10 cts.

Anti-Tuberculosis Leagues. Working Plan for Colored. By C. P. Wertenbaker. 8 pp., Public Health Reports, Sept. 3. 10 cts.

Dwelling Houses, Sanitary. Paper before Incorporated Sanitary Association of Scotland. By Robt. Adam. 1 1-3 pp., Municipal Journal, Sept. 10. 15 cts.

Typhoid Fever, Differentiation of Outbreaks of, Due to Water, Milk, Flies and Contact. Paper before American Public Health Association. By J. F. Anderson. 6 pp., Bulletin North Carolina Board of Health, August. 10 cts.

Human Plague. By W. C. Rucker. Public Health Report, Aug. 27. 10 cts.

Rabies, Prevention of, or the Control of the Dog. Paper before Conference Ohio Boards of Health. By Paul Fischer. 7 pp., Bulletin Ohio State Board of Health, April-June. 10 cts.

## WATER SUPPLY

Water Works at Camden, N. J. Illustrated, 3 1-2 pp., Municipal Journal and Engineer, Sept. 8. 10 cts.

East Orange Water Works System. By A. A. Reimer. Illustrated, 1 1-2 pp., Fire and Water, Sept. 8. 10 cts.

Erie, Pa., Water Works Report. Illustrated, 3-4 p., Municipal Journal and Engineer, Sept. 22. 10 cts.

New York City Water Supply. Paper before New England Water Works Association. By W. H. Brush. 2 1-3 pp., Engineering Record, Sept. 18. 10 cts.

Water Supplies for Small Communities. Paper before Ohio State Boards of Health. By Paul Hansen. 2 pp., Bulletin Ohio State Board of Health, April-June. 10 cts.

Injury to Water Power Plants by Municipal Water Works. 1 1-3 pp., Engineering Record, Sept. 11. 10 cts.

Water Supply and Purification. Paper before League of Saskatchewan Municipalities. By T. A. Murray. 3 1-2 pp., Canadian Engineer, Sept. 10. 15 cts.

Yield of Water, Rainfall, etc., on a Moorland Water Shed, and Notes on a New High Level Water Works of Exmouth. By S. Hutton. Illustrated, 6 pp., Surveyor, Aug. 20. 20 cts.

Masonry Dams, Stresses in. 2 1-2 pp., Canadian Engineer, Sept. 17. 15 cts.

Earth Dams Built by Hydraulic or by Dry Processes, Behavior of Clays in. Communications from J. D. Schuyler and F. C. Finkle. 1 1-2 pp., Engineering News, Sept. 23. 15 cts.

Progress on the Ashokan Reservoir. Illustrated, 5 pp., Engineering Record, Sept. 4. 10 cts.

Reservoir Pollution, Sources of. 1-2 p., Municipal Journal and Engineer, Sept. 8. 10 cts.

Water and Sewerage Works in a Large Water Shed. 1 1-3 pp., Engineering Record, Aug. 28. 10 cts.

Odors and Tastes in the Holyoke Water Supply. 2-3 p., Engineering Record, Sept. 18. 10 cts.

Water Pollution, Unusual Sources of. 1-2 p., Municipal Journal and Engineer, Sept. 8. 10 cts.

Isolation of a Paratyphoid Bacillus from a Drinking Water Supply. By Aylmer May. 9 pp., Journal Royal Institute of Public Health, September. 60 cts.

Pipe Lines, Materials for. By W. D. Ennis. Illustrated, 4 pp., Power, Sept. 21. 5 cts.

The 72-inch Steel Pipe Line of the Brooklyn Water Supply. Illustrated, 4 pp., Engineering Record, Sept. 18. 10 cts.

Cost of Laying Water Pipes. Cost of day labor in Boston for the past thirty years. Also in seven other Massachusetts cities. Analyses and comparison of figures. Illustrated, 3 pp., Municipal Journal and Engineer, Sept. 1. 10 cts.

Water Leakage in Washington. 1-2 p., Municipal Journal and Engineer, Sept. 8. 10 cts.

Flow of Water in Pipes, Culverts and Channels. Paper before Institute of County and Municipal Engineers. By E. H. Essex. Illustrated, 4 pp., Canadian Engineer, Sept. 10. 15 cts.

Gaugings of Small and Large Pipe, Los Angeles Aqueduct System. By J. B. Lippincott. Illustrated, 12 p., Engineering News, Sept. 23. 15 cts.

Methods of Measuring the Flow of Water. By Franklin Van Winkle. Illustrated, 2 pp., Power, Sept. 7. 5 cts.

Easement Curves for Hydraulic Machinery and Pipes. By R. H. Smith. 2 pp., Engineering Digest, August. 20 cts.

Pumping Engines, Cincinnati. Description of Engines. Results of duty test. Illustrated, 2 1-2 pp., Municipal Journal and Engineer, Sept. 8. 10 cts.

Steam Driven Pumping Plant for Deep Wells and Bore Holes. By Alfred Towler. Illustrated, 9 pp., Water, Aug. 16. 20 cts.

Producer Gas Pumping Plant. 1-2 p., Municipal Journal and Engineer, Sept. 1. 10 cts.

Working Results of Pumping Engines Operated by Producer Gas. Paper before Association of Water Engineers. By D. H. Irwin. 3 pp., Water, Sept. 15. 20 cts.

Purification of Water for Potable Purposes by Means of Chlorine or Hypo-Chlorites. Paper before International Congress of Applied Chemistry. By J. C. Thresh. 1 1-2 pp., Water, Sept. 15. 20 cts.

Purification of the Water Supply of Steelton, Pa. By J. H. Fierces. 63 pp., Proceedings American Society of Civil Engineers, August. 50 cts.

Water Purification Plant of Toledo. Detailed description and account of construction. Illustrated, 7 pp., Municipal Journal and Engineer, Sept. 1. 10 cts.

Water Purification at Poughkeepsie. 1-2 p., Engineering Record, Sept. 18. 10 cts.

Filtration and Purification of Water for Public Supply. By John Don. 4 1-2 pp., Water, Aug. 16. 20 cts.

Notes on Large Water Filters. 1 1-3 pp., Engineering Record, Aug. 28. 10 cts.

Water Filtration in Philadelphia. Results obtained at Torresdale filters. Effectiveness of preliminary filters. 3-4 p., Municipal Journal and Engineer, Sept. 8. 10 cts.

New Pittsburgh Filters. By H. M. Phelps. Illustrated, 6 pp., Municipal Engineering, September. 25 cts.

Construction of Ten Additional Sand Filters at Pittsburgh. Illustrated, 4 1-2 pp., Engineering Record, Sept. 18. 10 cts.

Filtration Plant of Louisville Water Company. Illustrated, 9 pp., Cement World, September. 15 cts.

Mechanical Filters. Illustrated, 2 1-2 pp., Canadian Engineer, Aug. 27. 15 cts.

Removal of Iron from Superior Water Supply. Paper before American Water Works Association. By W. C. Lounsbury. 1 p., Fire and Water, Aug. 25. 10 cts.

Disinfection as an Adjunct to Water Purification. Paper before New England Water Works Association. By H. W. Clark and S. De M. Gage. 1 p., Engineering News, Sept. 16. 15 cts.

Disinfection as an Adjunct to Water Purification. 1 p., Engineering Record, Sept. 18. 10 cts.

Water Sterilization at Boonton. By G. A. Johnson. Paper before American Water Works Association. 3 pp., Municipal Engineering, September. 25 cts.

Ozone, Purification of Water by. By M. L. Borne. 1-2 p., Surveyor, Aug. 20. 20 cts.

Lindsay Ozonization and the Ontario Provincial Board of Health. 1 p., Canadian Engineer, Aug. 27. 15 cts.

Fire Losses, Liability of Water Companies for. By E. R. Sutherland. 2 1-2 pp., Water and Gas Review, September. 20 cts.

Water Works Association, New England. Account of New York Convention. 3-4 p., Municipal Journal and Engineer, Sept. 8. 10 cts.

## STREET LIGHTING

### AND ELECTRIC POWER

Street Lighting as a Comprehensive Problem. 1 p., Electrical Review, Sept. 11. 10 cts.

Cost of Street Lighting in Bridgeport, Conn. 1-4 p., Municipal Journal and Engineer, Sept. 15. 10 cts.

Street Lighting in European Cities. 1-3 p., Municipal Journal and Engineer, Sept. 22. 10 cts.

Spacing of Light Units. By A. A. Wohlauer. 1 1-2 pp., Electrical World, Sept. 16. 10 cts.

Lighting Fixtures, Exterior. By E. L. Elliott. Illustrated, 5 pp., Illuminating Engineer, September. 20 cts.

Concrete Lighting Standard. Lincoln Park, Chicago. Illustrated, 1-2 p., Municipal Journal and Engineer, Sept. 15. 10 cts.

Varied Utilization of Gas Lamp Posts. 3-4 p., American Gas Light Journal, Sept. 13. 10 cts.

Arc Lighting, Developments in. By A. J. Mitchell. 2 pp., Electrical Review, Sept. 11. 10 cts.

Gas Lighting in Iowa Cities. 1-4 p., Municipal Journal and Engineer, Sept. 29. 10 cts.

Natural Gas for Baltimore. By C. F. Uebelacker. 1 1-2 pp., Progressive Age, Sept. 15. 20 cts.

Boosting Gas Pressure in Distributing Mains, Novel Use of Gas Engines for. 1-2 p., American Gas Light Journal, Sept. 20. 10 cts.

Electrolysis, Guarding Against, at Providence. 1-2 p., Fire and Water, Sept. 1. 10 cts.

Comparative Values of Various Coatings and Coverings for the Prevention of Soil and Electrolytic Corrosion of Iron Pipe. Paper before Illinois Gas Association. By R. B. Harper. Illustrated, 8 pp., American Gas Light Journal, Sept. 13; 4 pp., Sept. 6; 3 1-2 pp., Aug. 30. 10 cts.

Electricity Works, St. Pancras. Paper before Institution of County and Municipal Engineers. By S. W. Baynes. 1 p., Surveyor, Sept. 3. 20 cts.

Central Electric Plants in Small Towns. By J. S. Knowlson. Illustrated, 2 1-2 pp., Engineering News, Sept. 23. 15 cts.

## FIRE PROTECTION

Fire Fighting Appliance, Automobile as. Paper before International Association of Fire Engineers. By J. O. Glanville. 1-2 p., Fire and Water, Sept. 1. 10 cts.

Automobile Fire Apparatus. Abstract of paper before International Association of Fire Engineers. By J. O. Glanville. 3-4 p., Municipal Journal and Engineer, Sept. 1. 10 cts.

Electrically Controlled Fire Boat. Illustrated, 1-2 p., Fireman's Herald, Sept. 4. 5 cts.

Duluth and San Francisco Fire Boats. By John Liston. Illustrated, 2 1-2 pp., General Electric Review, September. 20 cts.

Rubber Tires for Fire Apparatus. Paper before International Association of Fire Engineers. By Fred Morrison. 1 p., Fire and Water, Sept. 8. 10 cts.

Fire Hose, Testing. 1-4 p., Municipal Journal and Engineer, Sept. 1. 10 cts.

Fire Department, Report on Greater New York. By N. J. Hayes. 2 pp., Fire and Water, Aug. 25. 10 cts.

Public Fire Service. By G. W. Harris. 2 pp., Water, Sept. 15. 20 cts.

High Pressure System, New York Fire. Illustrated, 2 pp., Fire and Water, Sept. 8. 10 cts.

Fire Fighting, Necessity for Locating Definite Point of Attack in. By A. Lindback. 1 p., Fire and Water, Aug. 25. 10 cts.

Combustion and Spontaneous Combustion. Paper before International Association of Fire Engineers. By R. H. T. Nesbitt. 2 pp., Fire and Water, Sept. 8. 10 cts.

Fire Resistive Properties of Various Building Materials. 2 1/2 pp., Cement Age, September. 15 cts.

Fire Hazards of Memphis, Report on the. 2-3 p., Fire and Water, Aug. 25. 10 cts.

Moral Hazards. Paper before International Association of Fire Engineers. By F. G. Row. 2-3 p., Fire and Water, Sept. 1. 10 cts.

## GOVERNMENT AND FINANCE

Wisconsin Commission, Methods of, for the Valuation of Public Utilities. 2 pp., Electrical World, Sept. 9. 10 cts.

Valuation of Public Utilities by the Railroad Commission of Wisconsin. Illustrated, 3 pp., Electric Railway Journal, Sept. 11. 10 cts.

Rate Decisions of the Wisconsin Public Utilities Commission. By C. R. Woodruff. 2-3 p., Engineering News, Sept. 9. 15 cts.

Municipal Problem, The. 1 1/2 pp., Outlook, Sept. 4. 5 cts.

Cleveland vs. Tom L. Johnson. 3 pp., Public Service, September. 20 cts.

Bond Sales, Municipal. 1 1/2 pp., Municipal Journal and Engineer, Sept. 8. 1 1/4 pp., Sept. 29. 10 cts.

Taxation and Organization. Paper before National Association of Real Estate Exchanges. By J. P. Day. 1/2 p., Real Estate News, September. 25 cts.

Accounts and Methods, New York City's Revision of. By H. D. Force. 15 pp., Journal of Accountancy, August. 25 cts.

Finance Investigating Commission in Every Large City, Necessity of a. 1 p., Engineering-Contracting, Sept. 22. 10 cts.

## STREET CLEANING AND REFUSE DISPOSAL

Street Cleaning in San Francisco. Illustrated, 1/2 p., Municipal Journal and Engineer, Sept. 29. 10 cts.

City Refuse and Its Disposal. By H. De B. Parsons. 3 pp., Engineering-Contracting, Sept. 1. 10 cts.

Albany Refuse Disposal Report. Private collection, estimates of cost of incinerating. 1 1-2 pp., M. J. & E., Sept. 15. 10 cts.

Incineration, City Refuse. From paper before Rensselaer Polytechnic Institute. By H. De B. Parsons. 2-3 p., Engineering Record, Sept. 4. 10 cts.

Location of Refuse Incinerator. 1/4 p., Municipal Journal and Engineer, Sept. 15. 10 cts.

Devices for Charging Refuse Into High-Temperature Refuse Incinerators. By S. A. Greeley. Illustrated, 6 pp., Engineering News, Aug. 26. 15 cts.

Refuse Disposal. Gainesboro Destructor. Illustrated, 1 p., Municipal Journal, Aug. 20. 15 cts.

Notes on Refuse Destructors. From paper before Association of Municipal and County Engineers. By W. F. Loveday. 2 pp., Engineering Digest, August. 20 cts.

Garbage Disposal at Davenport, Ia. Illustrated. 1/4 p., Municipal Journal and Engineer, Sept. 29. 10 cts.

Nuisance Ground and Scavenging. Municipal By-Laws. 2 pp., Western Municipal News, August. 10 cts.



## TRAFFIC AND TRANSPORTATION

**Freight and Passenger Business, Development of Long-Distance.** Paper before Central Electric Railway Association. By F. D. Norvell. 1 p., Electric Railway Journal, Sept. 4. 10 cts.

**Electric Railway Companies in the United States, Capitalization, Cars and Mileage of.** 2 pp., Electric Railway Journal, Sept. 4. 10 cts.

**City Rules as Finally Revised by the American Street and Interurban Association.** 3 pp., Electric Railway Journal, Sept. 4. 10 cts.

**Lyons (France) City Lines, Single-Phase Extensions of the.** Illustrated, 3 pp., Electric Railway Journal, Sept. 4. 10 cts.

**Chicago Street Railway Track, Deflections of.** Illustrated, 1 p., Engineering Record, Sept. 4. 10 cts.

**Berlin, Proposed Surface Car Subways in.** Illustrated, 1 p., Electric Railway Journal, Sept. 4. 10 cts.

**Beautifying Grounds, Work of the Indiana Union Traction Company in.** Illustrated, 2 pp., Electric Railway Journal, Sept. 18. 10 cts.

**Steel Cars for Chicago's Railway Company.** Illustrated, 4 pp., Electric Railway Journal, Aug. 28. 10 cts.

**Street Car Mail Boxes.** Illustrated, 1-3 p., Municipal Journal and Engineer, Sept. 15. 10 cts.

## STRUCTURAL MATERIALS

**I-Beams, Tests of Standard and Special.** From paper before American Society for Testing Materials. By Edgar Marburg. Illustrated, 4 pp., Engineering-Contracting, Sept. 8. 10 cts.

**Real Significance of Professor Marburg's Tests of Steel I-Beams.** Communication from Edward Godfrey. 2-3 p., Engineering-Contracting, Sept. 22. 10 cts.

**Stone, Durability of.** Illustrated, 2½ pp., Engineering Digest, September. 20 cts.

**Cement, The Setting of Portland.** From paper before Concrete Institute. By H. K. G. Bamber. 7 pp., Engineering Digest, August. 20 cts.

**Recent Advances in the Technology of Portland Cement in the United States.** Paper before Seventh International Congress of Applied Chemistry. By R. K. Meade. Illustrated, 5 pp., Concrete, September. 15 cts.

**Concrete, Preparation and Placing of Mortar in.** Extract from Report of Joint Committee on Concrete and Reinforced Concrete. 1 p., Engineering-Contracting, Sept. 1. 10 cts.

**Tests of Plain and Reinforced Concrete Columns.** Paper before American Society for Testing Materials. By M. O. Withey. Illustrated, 2 pp., Engineering News, Sept. 16. 15 cts.

**Forms in Concrete Work, Design and Construction of.** Illustrated, 1-3 pp., Engineering-Contracting, Sept. 22. 10 cts.

**Experiments to Determine Pressure of Concrete on Forms.** By F. R. Shunk. Illustrated, 3 pp., Engineering-Contracting, Aug. 25. 10 cts.

**Concrete Piles, Large.** By W. F. Johnston. Illustrated, 1 p., Engineering Record, Sept. 25. 10 cts.

**Steel Sheet Piling, Weminger.** Illustrated, 2½ pp., Iron Age, Sept. 9. 15 cts.

**Cresosoting Timber, Difficulties in the Practical Work of.** By J. C. Oak. 3 pp., Engineering News, Sept. 2. 15 cts.

## BRIDGES

**Highway Bridges.** Illustrated, 2 pp., Municipal World, September. 10 cts.

**The Bridges of New York City.** By T. K. Thomson. Illustrated, 16 pp., Engineering Magazine, September. 25 cts.

**Roads and Bridges of Cuyahoga County.** By I. O. Hoffman. Illustrated, 7 pp., Good Roads, September. 10 cts.

**Walnut Lane Bridge, Philadelphia.** By G. S. Webster and H. M. Quimby. Illustrated, 39 pp., Proceedings American Society of Civil Engineers, August. 50 cts.

**Economics of the Design and Construction of the Walnut Lane Concrete Arch.** Illustrated, 4 pp., Engineering-Contracting, Sept. 8. 10 cts.

**Concrete on Unusual Bridge Structure, Placing.** Illustrated, 2 pp., Contractor, Sept. 1. 20 cts.

**Monroe Street Bridge, Spokane, Wash.** A concrete bridge containing a 281-foot arch. Illustrated, 2 pp., Engineering News, Sept. 2. 15 cts.

**Design of Culverts and Earth-Filled Arch Bridges, Common Errors in the.** By W. J. Douglas. 1-3 p., Engineering News, Sept. 16. 15 cts.

**Computation of Stresses in Open-Webbed Arches Without Hinges.** By C. W. Hudson. Illustrated, 9 pp., Proceedings American Society of Civil Engineers, August. 50 cts.

## MISCELLANEOUS

**Town Planning Congress. Proceedings at meetings held in England.** Cheap land and cheap homes for workmen. 1-2 pp., Municipal Journal and Engineer, Sept. 29. 10 cts.

**Chicago's City Plan.** General description of lake front, highways, railway terminals, parks and civic centers. 1-2 p., Municipal Journal and Engineer, Sept. 1. 10 cts.

**Plan for Chicago.** By G. E. Hooker. Illustrated, 12 pp., Survey, Sept. 4. 25 cts.

**Making Boston over.** By O. R. Lovejoy. Illustrated, 14 pp., Survey, Sept. 4. 25 cts.

**Civic Center for San Diego.** By E. P. Bailey. Illustrated, 1-2 pp., Municipal Engineering, September. 25 cts.

**Preparation of Plans and the Assessment of Betterments in Boston and the Laws Covering the Same.** Paper before Boston Society of Civil Engineers. By C. O. Whitney. Journal Association of Engineering Societies, August. 30 cts.

**Genesis of a Great City. Proposed Civic Center for Chicago.** By J. G. Shedd. Illustrated, 5 pp., The World To-Day, September. 15 cts.

**Description of Santa Cruz.** Illustrated, 5 pp., Pacific Municipalities, August. 10 cts.

**Municipal History and Works of a Small City.** Paper before Institution of Municipal Engineers. By J. T. Pegge. Illustrated, 5 pp., Contract Journal, Aug. 18. 20 cts.

**Public Works of Cleveland, Ohio.** Illustrated, 2 pp., Good Roads, September. 10 cts.

**Municipal Engineering in Portland.** By W. P. Hardesty. 1 pp., Municipal Engineering, September. 25 cts.

**Market, Birkenhead Covered.** Illustrated, 1 p., Municipal Journal, Sept. 3. 15 cts.

**Vagrancy, Concerning Municipal Lodging Houses.** By O. F. Lewis. 10 pp., Survey, Sept. 4. 25 cts.

**Baths for Manchester, New.** Illustrated, 1 p., Municipal Journal, Sept. 10. 15 cts.

**Shelter Hall, Littlehampton.** Illustrated, 2 pp., Survey, Aug. 27. 20 cts.

**City Shop, Denver's.** Municipal Blacksmith, Carpenter and Paint Shop. Illustrated, 1 p., Municipal Journal and Engineer, Sept. 29. 10 cts.

**Contract and Day Labor Systems, Report on the Relative Merits of the.** 2-3 p., Engineering-Contracting, Sept. 8. 10 cts.

**Municipal Day Labor, Influence of Age of Laborers Employed Upon Efficiency of.** 2-3 p., Engineering-Contracting, Sept. 1. 10 cts.

**Costs Keeping Systems, Some.** 3 1-2 pp., Engineering-Contracting, Sept. 15. Illustrated, 6 pp., Sept. 22. 10 cts.

**Accounting and Cost Methods for Contract System.** 2-3 pp., Engineering-Contracting, Sept. 1. 10 cts.

**Comparing Costs of Municipal Work.** 1-4 p., Municipal Journal and Engineer, Sept. 1. 10 cts.

**Filing System of Records in the Engineering Department of Salt Lake City.** Paper before Utah Society of Engineers. By O. H. Skidmore. 5 pp., Journal Association of Engineering Societies, August. 30 cts.

**Indexing Used in the Engineering Department of the Town of Brookline.** Paper before Boston Society of Civil Engineers. By H. A. Varney. Journal Association of Engineering Societies, August. 30 cts.

**An Efficient Indexing System for a Civil Engineer's Office.** By W. A. Brown. Illustrated, 1 p., Engineering News, Sept. 2. 15 cts.

**Retaining Walls, Design of.** Illustrated, 2 pp., Engineering Record, Sept. 11. 10 cts.

**Area, Computation of.** By F. J. Gray. Illustrated, 3 pp., Survey, Sept. 10. 20 cts.

**Draining Capacity, Density and, of Artificial and Natural Mixtures of Sand and Gravel.** Illustrated, 1 p., Engineering News, Sept. 23. 15 cts.

**Current Meter, Use and Care of the, as Practiced by the U. S. Geological Survey.** By J. C. Hoyt. 36 pp., Proceedings American Society of Civil Engineers, August. 50 cts.

**Contracts, Definite and Enforceable.** 1-4 p., Municipal Journal and Engineer, Sept. 1. 10 cts.

**Coal, The Purchase of, by the City of New York.** 3-4 p., Engineering News, Sept. 9. 15 cts.

**Smokeless Consumption of Fuel.** By Robt. Grimshaw. 1-2 pp., Engineering Digest, August. 20 cts.

**Relation of the Character of Coals to the Prevention of Smoke.** Paper before International Association for the Prevention of Smoke. By D. T. Radnall. California Journal of Technology, September. 15 cts.

**Tunnel, Construction of the Rotherhithe.** Illustrated, 2-3 pp., Engineering Record, Sept. 11. 10 cts.

**Telephone System, Edmonton Automatic.** By W. E. Baker. 1 p., Canadian Municipal Journal, September. 10 cts.

**Police Telephone Service Up to Date.** Account of New York Electrical Bureau. 2 pp., Public Service, September. 20 cts.

**Engineering Courses, Five-Year.** Paper before Society for the Promotion of Engineering Education. By W. T. Magruder. 2-3 p., Engineering News, Sept. 2. 15 cts.

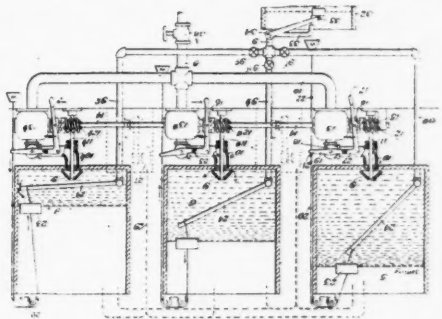
## PATENT CLAIMS

**933,894. WATER-LIFT.** Franklin O. De Hymel, San Antonio, Texas. Serial No. 430,443.

A water lift comprising a cylinder of uniform interior diameter throughout adapted to be permanently placed in the ground, a cylindrical casing of greater diameter than the cylinder and attached to the upper end of the cylinder, a piston having a valve located in the cylinder and attached to a rod extending through the cylindrical casing, and a disk valve of greater diameter than the cylinder and of less diameter than the casing arranged in the casing and working loosely on the rod, substantially as described.

**935,303. WATER-PURIFYING APPARATUS.** John C. W. Greth, Pittsburg, Pa., assignor, to Wm. B. Scaife & Sons Co., Pittsburg, Pa., a corporation of New Jersey. Serial No. 375,840.

In water purifying apparatus, the combination with a plurality of tanks, of a com-



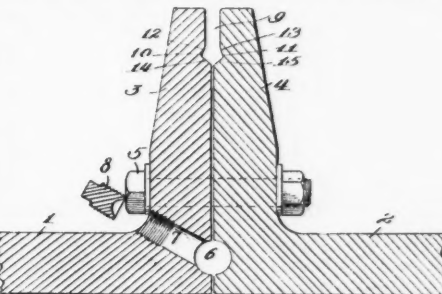
mon water inlet under head, to the bottom of each tank, and means whereby each stirring device is operated directly by the water coming into any one of the tanks.

**935,471. HYDRANT-CASING.** Jacob Day, St. Louis, Mo., assignor to John C. Kupferle Foundry Co., St. Louis, Mo., a corporation. Serial No. 483,940.

In a hydrant casing, the combination with a pipe and a supporting section attached to said pipe, of an expandable and compressible casing having interlocking engagement with said supporting section.

**935,376. AIR AND WATER TIGHT JOINT FOR TUNNELS AND SIMILAR STRUCTURES.** Alfred Lennon, Olivebridge, N. Y. Serial No. 484,721.

A tunnel or similar structure built up of a plurality of sections provided with internal abutting flanges, devices extending



through and connecting said flanges, and a pair of fluid-tight packings formed separately and arranged between the opposed faces of said sections, one packing being plastic and arranged exteriorly of said connecting devices and the other interiorly thereof.

**935,573. BITUMINOUS CEMENT.** Joseph H. Amies, Philadelphia, Pa., assignor to the Amies Asphalt Co., Philadelphia, Pa., a corporation of South Dakota. Serial No. 479,257.

The herein described process of making a composition for paving and like purposes which consists in mixing together crushed bituminous and resinous materials, the said crushed calcium oxide being mixed with the mass while in a dry state and before the calcium oxide begins to slake, substantially as described.

## THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Street Railways—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we can not guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

## BIDS ASKED FOR

## STREET IMPROVEMENTS

|               |                   |                    |   |  |
|---------------|-------------------|--------------------|---|--|
| Illinois      | Chicago           | Oct. 8             | Vit. brick, creos. wood block paving, etc., several streets.  | C. A. V. Standish, Sec'y Bd. Loc. Imp.           |
| Indiana       | Winamac           | Oct. 8             | Bldg. gravel road in White Post Township.   | E. S. Rees, County Auditor.                      |
| Ohio          | Youngstown        | Oct. 8, noon       | Paving Hether street.   | W. H. McMillin, Clk. Bd. Pub. Ser.               |
| Ohio          | Bryan             | Oct. 8, noon       | Grading and macadamizing 2.31 miles road; cost, \$13,507.   | J. C. Wonders, Hwy. Com'r Col'bus                |
| Ohio          | Akron             | Oct. 8, noon       | Paving, etc., 4 sts., sewer and grading others.   | Chas. H. Watters, Pres. Bd. Pub. Ser.            |
| Ohio          | Cincinnati        | Oct. 8, noon       | Grading Dry Ridge road and bldg. culvert in Colerain twp.   | Fred Dreihls, Clk. Co. Comrs.                    |
| Indiana       | Mt. Vernon        | Oct. 9, 9 a.m.     | Bldg. 8.04 miles; 6 gravel roads, macadamizing, etc., two.  | Paul Maier, County Auditor.                      |
| Tennessee     | Bristol           | Oct. 9             | Grading and macadamizing 60 miles of road.  | John H. Caldwell, Chm. Co. Comrs.                |
| Colorado      | Lake City         | Oct. 9             | Bldg. and repairing portion of road between Lake City and Creede.   | C. W. Comstock, State Engr., Denver.             |
| Georgia       | Elberton          | Oct. 10            | Constructing 35,000 sq. yds. concrete sidewalks.  | W. F. Jones, City Clerk.                         |
| Illinois      | Quincy            | Oct. 11            | Brick paving, 7 blocks of 10th st.; asphalt filler, macadam base, etc.  | John A. Steinback, Mayor.                        |
| Massachusetts | Boston            | Oct. 11, 2:30 p.m. | Paving roadway on Charles river dam, Boston and Cambridge; 9,000 sq. yds. granite block, 2,200 yds. brick walks, 2,700 lin. ft. granite edgestones, 6,200 cu. yds. gravel, 15 catch basins. | H. A. Miller, Ch. Engr. Charles River Commission |
| New Jersey    | Newark            | Oct. 11, 3 p.m.    | Bituminous telford paving, grading, etc., 5 County roads.   | Wallace Oughletree, Dir. Freeh'dra.              |
| Ohio          | Alliance          | Oct. 11            | Grading, draining, paving, curbing, 2 streets.  | C. E. Swearingen, Clk. Bd. Pub. Serv.            |
| Kentucky      | Richmond          | Oct. 12, noon      | Bldg. 2,000 lin. ft. macadam walk at Normal School.   | J. R. Johnson, C. E., Normal School.             |
| Indiana       | South Bend        | Oct. 12, 10 a.m.   | Brick paving, 2 sts.; asphalt macadam, 2; walks, 3.   | Board of Public Works.                           |
| Indiana       | Logansport        | Oct. 12            | Grading, graveling, etc., portion of Wright st.   | Chas. Ringleben, Chm. Pub. Wks. Dept.            |
| Indiana       | Ligonier          | Oct. 12            | Paving 7,400 sq. yds., any hard material.   | R. E. Jeanneret, City Clerk.                     |
| New Jersey    | Freehold          | Oct. 13, 11 a.m.   | Bldg. gravel road 2.61 miles long in two townships.   | Board of Chosen Freeholders.                     |
| California    | Riverside         | Oct. 13            | Completing five-mile Banning-Idylwild road; \$18,000.   | A. B. Pitch, Clk. Co. Sup.                       |
| Ohio          | Cleveland         | Oct. 13, 11 a.m.   | Paving bridge and approaches over Belt Line R.R. in Bkln. twp.  | Wm. F. Black, Clk. Co. Comrs.                    |
| New York      | New Br'ton, S. I. | Oct. 14, noon      | Macadam and concrete paving, vit. brick gutters on concrete, regulating and grading sts., etc.  | Geo. Cromwell, Pres. of Boro.                    |
| Indiana       | Covington         | Oct. 15            | Bldg. Bowen gravel road in Davis township.  | W. P. Gray, County Auditor.                      |
| Alabama       | Fort Morgan       | Oct. 15, 1:30 p.m. | Brick and wood road paving, granolithic walks.  | Capt. H. B. Chamberlin, Q.M., U.S.A.             |
| Alabama       | Huntsville        | Oct. 19, noon      | Paving, curb, gutter, sidewalks on Eustis street.   | Thomas W. Smith, Mayor.                          |
| Ohio          | Toledo            | Oct. 19            | Grading, draining, macadamizing, 3 1-4 miles road, 2 twps.  | D. T. Davies, Jr., County Auditor.               |
| Ohio          | Orrville          | Oct. 25, noon      | Improving Walnut street.  | A. L. Reed, Village Clerk.                       |
| Indiana       | Fowler            | Nov. 4, 1 p.m.     | Bldg. stone road on County line; cost, \$12,590.  | Lemuel Shipman, County Auditor.                  |

## SEWERAGE

|               |                   |                  |  |                                      |
|---------------|-------------------|------------------|--|--------------------------------------|
| Ohio          | Akron             | Oct. 8, noon     | Bldg. sewers in 7 sts., inc. manholes, etc.  | Ray. F. Hamlin, Sec'y Bd. Pub. Serv. |
| Ohio          | Wooster           | Oct. 8, noon     | Bldg. sewer in E. Bowman and Gasche sts.   | C. W. Van Nest, Clk. Bd. Pub. Serv.  |
| Ohio          | Youngstown        | Oct. 8           | Bldg. sewer in Bettie ave.   | W. H. McMillin, Clk. Bd. Pub. Serv.  |
| Idaho         | Caldwell          | Oct. 9           | Bldg. sewers in Dist. No. 3; cost, \$60,000.   | F. H. Richardson, City Engineer.     |
| Minnesota     | Roseau            | Oct. 9, 7 p.m.   | Bldg. 1,900 ft. 30-9-in. vit. pipe sewer, 6 manholes, 6 catch basins.  | J. E. Carroll, C.E., Crookston.      |
| Indiana       | Evansville        | Oct. 9           | Constructing sewer in alley between Mich. and Va. streets.   | W. F. Wunderlich, Clk. Bd. Pub. Wks. |
| Wisconsin     | West Allis        | Oct. 11          | Constructing 55,000 lin. ft. sewer and 170 manholes.   | L. F. Fish, City Clerk.              |
| Iowa          | Manchester        | Oct. 11          | Bldg. 8-in. No. 1 vit. pipe sewer in Liberty st.   | Edw. Truby, City Clerk.              |
| Indiana       | South Bend        | Oct. 12, 10 a.m. | Constructing pipe sewer in College st.   | Board of Public Works.               |
| New York      | Syracuse          | Oct. 14, noon    | Contract No. 6 for West st. intercepting sewer, inc. 1,680 ft. 12-in. and 720 ft. 8-in. vit. pipe.   | Harry J. Hamlin, Sec'y Sewer Bd.     |
| New York      | Batavia           | Oct. 14, 10 a.m. | Bldg. sewer system: Cont. 1, 30 miles sanitary sewer, etc.; No. 2, 4,200 ft. 16-in. c. i. force main; No. 3, pumping well and fittings; No. 4, 4,000 ft. storm water and effluent sewer; No. 5, extending municipal bldg.; also 100 h.p. Corliss engine; 250 h.p. Scotch marine boiler; 3 centrifugal pumps and sundries; Chas. Hoopes, Res. Engr. | Board of Sewer Commissioners.        |
| New York      | New Br'ton, S. I. | Oct. 14, noon    | Bldg. temp. sanitary, combined and storm sewers, several sts.  | Geo. Cromwell, Pres. of Boro.        |
| California    | Colusa            | Oct. 18          | Bldg. \$50,000 sewer system and \$50,000 water system.   | J. W. Kaerth, City Engineer.         |
| West Virginia | Huntington        | Oct. 18, 2 p.m.  | Material and labor for 12-in. lateral sewer in alley.  | City Commissioners.                  |
| South Dakota  | Salem City        | Oct. 18          | Bldg. main sewers in Main st. and Norton ave., sewers other sts.   | N. M. Nelson, City Auditor.          |
| Washington    | Fort Worden       | Oct. 22, 11 a.m. | Constructing additions to sewer system.  | Capt. B. C. Long, Constr. Q. M.      |

## WATER SUPPLY

|                 |                |                    |   |  |
|-----------------|----------------|--------------------|---|--|
| Virginia        | Christiansburg | Oct. 8, 8 p.m.     | Laying complete 1 1-2 miles 10-in., 2 1-2 miles 8-in., 2 1-4 miles 6-in. c. i. pipe, etc.; Howard Murphy, C.E.  | John R. Johnson, Chm. Water Com.                         |
| Nebraska        | Carroll        | Oct. 8             | Bldg. water works: 1 1-4 miles 8 to 4-in. mains, steel tower and tank, gasoline engine, deep well pump, well, pump-house, etc.  | Mayor or Village Clerk.                                  |
| Wisconsin       | Sheboygan      | Oct. 9, 3 p.m.     | Bldg. 300 ft. 12-in. pipe, etc., across Sheboygan river.  | Theo. Dieckmann, Pres. Water Bd.                         |
| British Col'bia | Victoria       | Oct. 11, 4 p.m.    | Furn. 2,500 ft. 12-in. weldless steel spigot and faucet tubes, 15,000 ft. 8-in., 20,000 ft. 6-in., 50,000 ft. 4-in. pipe.   | W. W. Northcott, City Purch. Agt.                        |
| Colorado        | Ouray          | Oct. 12, noon      | Bldg. concrete flume 2,450 ft. long and one 2,300 ft. long.   | David Frakes, City Clerk.                                |
| Oklahoma        | Fort Gibson    | Oct. 12            | Installing complete water works system for town.  | M. A. Earl & Co., Muskogee, Engrs.                       |
| New York        | New York       | Oct. 13            | Furn. and laying high-pressure mains in 6 sts., Manhattan.  | John H. O'Brien, Commr. W. S., G. & E.                   |
| North Carolina  | Asheville      | Oct. 15            | Making watertight a 5,000,000-gal. concrete reservoir.  | B. M. Lee, City Engineer.                                |
| Minnesota       | Jeffers        | Oct. 15            | Drilling a well.  | L. A. Durre, Village Recorder.                           |
| California      | Colusa         | Oct. 18            | Constructing \$50,000 water works and \$50,000 sewer system.  | A. B. Jackson, Town Clerk.                               |
| New Jersey      | Atlantic City  | Oct. 19, 2:30 p.m. | Bldg. 25,500 ft. 48-in. wood stave force main to city.  | L. Van Gilder, Engr. Water Works.                        |
| Pennsylvania    | Pittsburg      | Oct. 20            | Furn. and install two 7,000,000-gal. pump, engines, So. Side.   | Jos. G. Armstrong, Dir. Dept. Pub. Works.                |
| North Carolina  | Wilmington     | Oct. 21            | Material and labor for bldg. distributing system.   | Water and Sewerage Commission.                           |
| Missouri        | Kansas City    | Oct. 21, 2 p.m.    | Furn. and erect. 25,000,000-gal. cent. pump, dir. con. to vert. condensing engine, complete.  | S. J. Armstrong, Sec'y Bd. Fire and Water Commissioners. |
| Ontario         | Toronto        | Oct. 28, noon      | Furn. turbine pumps: four 13,500,000-gal., 100 lbs. pressure; two 5,000,000-gal., 300 lbs.; two 10,000,000-gal., 65 lbs. and two 110 lbs.; two 6,500,000-gal., 90 lbs. and two 160 lbs.; two 1,500,000-gal., 65 lbs. and two 110 lbs. pres.; also valves, piping, bed-plates, couplings, etc. | Joseph Oliver, Mayor.                                    |
| Wyoming         | Casper         | Oct. 28, 2 p.m.    | Bldg. Pathfinder dike, 45 miles s.w.; 160,000 cu. yds. excav.; 8,000 cu. yds. pavement; 2,000 cu. yds. concrete masonry.  | U. S. Reclam. Serv., Denver, Col.                        |
| Texas           | Dallas         | Nov. 10, 3 p.m.    | Furn. and install 15,000,000-gal. pumping engine of vertical, triple expansion cond. crank and fly wheel self-cont. type.   | J. B. Winslett, City Secretary.                          |



## BIDS ASKED FOR

| STATE                     | CITY              | RECEIVED UNTIL      | NATURE OF WORK  | ADDRESS INQUIRIES TO  |
|---------------------------|-------------------|---------------------|---|---|
| <b>BRIDGES</b>            |                   |                     |   |   |
| North Carolina            | Asheville         | Oct. 8              | Bldg. rein. concrete bridge and viaduct over river and railroad: 800 to 975 ft. long; 24-30 ft. roadway; one sidewalk; 24-ton load, 100 lbs. per sq. ft. and two 35-ton electric cars, en train; bidders also submit plans.   | R. P. Johnson, C.E., c/o Co. Comra. P. St. J. Wilson, State Hwy. Comr. Harry Stinson, City Auditor. |
| Virginia                  | Richmond          | Oct. 8              | Bldg. steel bridge, one 100 and 70-ft. span, at Altizer's Ford.   |   |
| Indiana                   | Evansville        | Oct. 9, 10 a.m.     | Bldg. 3 rein. concrete bridges; also abutments for bridge.  |   |
| New York                  | St. George, S. I. | Oct. 11             | Furn. material and bldg. steel viaduct between trolley platform and J st.; security, \$20,000.  | Allen N. Spooner, Comr. Docks, New York City.   |
| Indiana                   | South Bend        | Oct. 11, 10 a.m.    | Constructing 3 new flat-top I-beam bridges, and wing walls and abutments for repairing 2 others.  | John W. Harbou, County Auditor.   |
| Ohio                      | Cincinnati        | Oct. 11, noon       | Bldg. sub and superstructure, lift bridge over canal; bond, \$1,000.  | John J. Wenner, Clk. Bd. Pub. Serv. County Auditor.   |
| Ohio                      | Lisbon            | Oct. 11             | Bldg. steel truss bridge 60 ft. long, 14 ft. roadway, concrete floor.   |   |
| Ohio                      | Canal Winchester  | Oct. 12             | Bldg. sub and superstructure of Bishop Run bridge, 3 miles south; also approaches.  | F. M. Sayre, County Auditor.  |
| Pennsylvania              | Chambersburg      | Oct. 12             | Bldg. rein. concrete substructure, two 29-ft. spans, 17-ft. clear width in Washington township.   | W. H. Forman, County Engineer.  |
| Ohio                      | Columbus          | Oct. 13, 2 p.m.     | Bldg. sub and superstructure and approaches to bridge.  | F. M. Sayre, County Auditor.  |
| Pennsylvania              | York              | Oct. 15, 10 a.m.    | Bldg. rein. concrete bridge, 40-ft. span, 14-ft. roadway.   | Geo. F. Bortner, Chm. Co. Comrs.  |
| New Mexico                | Shiprock          | Oct. 15, 2 p.m.     | Bldg. steel hwy. bridge over San Juan river in S. J. Reservation.   | Wm. F. Shelton, Supt. Ind. Reserv.  |
| Louisiana                 | Natchitoches      | Oct. 18, 10 a.m.    | Bldg. creosoted pile bridge over Black Lake.  | P. E. Prudhomme, Pres. Police Jury.   |
| Ohio                      | Newark            | Oct. 19, noon       | Bldg. superstructure of two bridges.  | U. N. Wright, County Auditor.   |
| British Col'bia           | Vancouver         | Oct. 25, 4 p.m.     | Bldg. bridge over False Creek, bet. Bridge and Beatty sts.; 3,375 ft. long, with 264-ft. elec. op. swing span on concrete piers, 66 deck plate girder spans, 35 to 80 ft. long, on steel bents on concrete pedestals; approaches, 150 ft. long; roadway, 44 ft. wide; creos. wood floor; two 6-ft. walks. | Mayor and City Council.   |
| Manitoba                  | Assessippi        | Oct. 27             | Bldg. steel bridge over Assiniboine river.  | F. G. Richardson, Clk. Shellmouth.  |
| Louisiana                 | Tallulah          | Nov. 3              | Bldg. bridge over Roundaway Bay; 140 ft. long, 16 ft. wide, with 60-ft. span; approaches to be filled.  | A. L. Slack, Sec'y Police Jury.   |
| Indiana                   | Fowler            | Nov. 4, 1 p.m.      | Bridging, draining, etc., C. J. Fox stone road; cost, \$12,590.   | Lemuel Shipman, County Auditor.   |
| Illinois                  | Batavia           | Nov. 29             | Building steel bridge over Mahanoy Creek.   | Town Commissioners.   |
| <b>LIGHTING AND POWER</b> |                   |                     |   |   |
| Washington                | Spokane           | Oct. 8, 2 p.m.      | Furn. three 5,000,000-gal. multi-stage centrifugal pumps, one 650 h.p. horizontal water wheel, three induction motors, switchboards and connections.  | J. T. O'Brien, Sec'y Bd. Pub. Wks.  |
| Minnesota                 | Madison           | Oct. 10             | Installing, complete, 72-in. by 18-ft. boiler in city electric lighting plant.  | J. C. Bang, Mgr. Elec. Lt. Plant.   |
| Oklahoma                  | Muskogee          | Oct. 11, 5 p.m.     | Furn. 50 gaslamp posts, f. o. b. Muskogee; designs with bid.  | Chas. Wheeler, City Clerk.  |
| Virginia                  | Port Myer         | Oct. 13, 11 a.m.    | Electric light system for post, inc. fixtures, etc., for 44 bldgs. and underground or overhead distributing system for grounds.   | Capt. W. W. Whitside, Con. Q. M.  |
| Montana                   | Helena            | Oct. 18, noon       | Furn. and deliver, f. o. b. Helena, equipment for elec. light plant.  | J. A. Mattson, City Clerk.  |
| Wisconsin                 | Madison           | Oct. 19             | Furn. material for heat, light and power plant for Capitol, except boilers, engines, dynamos and pumps.   | Lew. F. Porter, Sec'y Capitol Com.  |
| Indiana                   | New Albany        | Oct. 20             | Lighting streets and alleys by electricity for 10 years from Sept. 1, 1910; \$10,000 check with each bid.   | John C. Short, City Clerk.  |
| Texas                     | Galveston         | Oct. 21, noon       | Furn. dir. con. engine generator set of 150 k.w., inc. switchboard, etc., and installing in city power plant.   | W. D. Masterson, Supt. Electricity.   |
| South Carolina            | Columbia          | Oct. 25             | Lighting streets of city; S. L. Sweeney, Chm. Lt. Com.  | G. F. Cooper, City Clerk.   |
| Ontario                   | Toronto           | Oct. 28, noon       | Furn. four 1,500, four 500 and two 225 h.p. synchronous motors; also two 1,500 and four 500 h.p. induction motors, with exciters, switchboards, connecting material, etc.   | C. H. Rust, City Engineer.  |
| Georgia                   | Savannah          | Nov. 8              | Illumination by 610 electric arc, also incandescent lamps of city streets, and for sale to city of electric current for illumination, heat or power.  | Harry Willink, Dir. of Pub. Wks.  |
| <b>MISCELLANEOUS</b>      |                   |                     |   |   |
| New York                  | Fort Terry        | Oct. 8, 10 a.m.     | Constructing garbage crematory complete.  | Constructing Q. M., U. S. A.  |
| Illinois                  | Chicago           | Oct. 8              | Furn. material for dredging away or otherwise removing remnant of old intermediate crib on line of 4-mile tunnel in Lake Michigan.  | John J. Hanberg, Comr. Pub. Wks.  |
| Michigan                  | Detroit           | Oct. 11, 2:30 p.m.  | Furn. auto. fire engine and hose wagon, f. o. b. Detroit.   | G. W. Stockwell, Sec'y Fire Comm.   |
| West Virginia             | Elkins            | Oct. 12             | Competitive plans, etc., for new \$30,000 jail building to house 48 persons; also jailer's residence.   | S. A. Rowan, Clerk, County Court.   |
| Ohio                      | Columbus          | Oct. 13             | Furn. material and bldg. garbage loading station; also for railway track scale adjacent to reduction plant.   | E. W. Hirsch, Sec'y Bd. Pub. Serv.  |
| New York                  | New York          | Oct. 14, 10:30 a.m. | Furn. and delivering 21,000 ft. underground lead-covered cable, for fire alarm telegraph system.  | Nicholas J. Hayes, Fire Com'r.  |
| Alabama                   | Montgomery        | Oct. 18, noon       | Bldg. warehouse platform and superstructure of incline for city wharf; also concrete substructure, 300 cu. yds.; also furn. and install hoisting and haulage machinery.   | Robert Tait, City Treasurer.  |
| California                | Los Angeles       | Oct. 18             | Furn. and erect, complete, rock-crushing plant, inc. sizing machinery and storage bins with guaranteed capacity of 500 tons per 8-hr. day, near Pasiona on So. Pac. Ry.   | C. G. Keyes, County Clerk.  |
| New Jersey                | Trenton           | Oct. 19, noon       | Dredging section of proposed inland waterways from Cape May to Bay Head, inc. removal of 145,000 cu. yds. material, place measurements.   | Harry W. Schneider, Int. W. W. Comr.  |
| New Jersey                | Camden            | Oct. 20, 8 p.m.     | Reslating roof of Morris pumping station.   | Camden Water Works Co.  |
| Manitoba                  | Winnipeg          | Nov. 1, 11 a.m.     | Furn. motor hose wagon, to carry 2,000 ft. 2.5-in. hose and 8-in. engine.   | M. Peterson, Sec'y Bd. of Control.  |

## STREET IMPROVEMENTS

**Anniston, Ala.**—City is considering laying of about 700 yards paving in addition to cement sidewalks on 16th st. and Blue Mountain ave. Henry C. Allen, City Engineer.

**Anniston, Ala.**—Council has ordered issuance of \$4,000 boulevard bonds.

**Florence, Ala.**—City has decided to improve extension of Royal ave.

**Gadsden, Ala.**—Council has sold \$45,000 paving bonds to First National Bank of Cleveland, O.

**Livingston, Ala.**—Sumter County is considering construction of sand roads; cost, \$2,500. M. K. Pickens, County Clerk.

**Tuscaloosa, Ala.**—Board of Revenue will consider repair of four miles of road between this city and Birmingham.

**Pine Bluff, Ark.**—Board of Improvement, Paving District No. 26, will receive bids Oct. 16, noon, for construction of 32,000 sq. yds. of pavement and curbing; bids are asked on vit. brick, bitulithic and creosoted wood blocks.—E. W. Sheppard, Secretary.

**Colusa, Cal.**—County Supervisors did not let contract for construction of road No. 228.—W. J. King, Clerk.

**Oakland, Cal.**—Council has passed to print bill appropriating \$3,500 additional for culverts at Grand ave. and 12th st. dam.

**Oakland, Cal.**—Plans will be prepared by City Engineer F. C. Turner for paving 22d st.

**San Bernardino, Cal.**—Council is considering paving or macadamizing of about two miles of streets; bids will be readvertised for paving Mt. Vernon ave.

**Dover, Del.**—All Delaware towns are interested in sidewalk improvements; citizens of this city are considering laying of tested cement sidewalks.

**Key West, Fla.**—Citizens will vote Nov. 9 on \$240,000 bonds for street improvements.

**Palm Beach, Fla.**—Palm Beach County will vote Oct. 19 on \$200,000 bonds for road construction.

**Gainesville, Ga.**—City has decided to pave one block on Green st.

**Waynesboro, Ga.**—Burke County will

construct about 25 miles of clay and sand roads in near future. W. N. Fulcher, County Commissioner.

**Caldwell, Ida.**—Citizens have voted \$129,000 bonds for paving about 20 blocks with bitulithic paving.

**Batavia, Ill.**—City will pave E. Wilson st. with brick; cost \$3,300.

**East Moline, Ill.**—Paving of 3d ave. is being considered.

**East St. Louis, Ill.**—Bids will be received by Board of Local Improvements Oct. 7, noon, for improving five streets.—Frank B. Hanna, Clerk.

**Eureka, Ill.**—Ohio Township is considering building of a number of miles of gravel roads.

**Lake Forest, Ill.**—City is considering paving of Noble ave., north of Rose Terrace.

**Peoria, Ill.**—Board of Local Improvements has decided to pave with brick portions of Hecox st. and California ave. at \$15,733 and \$8,680, respectively.

**Peoria, Ill.**—Board of Local Improvements has ordered paving of three streets; cost \$35,389.

**Pontiac, Ill.**—Citizens have voted \$20,000 bonds for improvement of streets.

**Robinson, Ill.**—Citizens have voted \$8,000 bonds for public improvements.

**Troy, Ill.**—Citizens will vote on \$2,000 bonds for the paving of Main st.

**Delphi, Ind.**—Bids will be received Oct. 7, noon, by County Commissioners, for construction of macadam road in Dear Creek Township.—M. G. Haun, Auditor, Carroll County.

**Indianapolis, Ind.**—Board of Public Works has confirmed eleven street improvement resolutions.

**Marion, Ind.**—Boards of Wabash and Grant Counties are considering construction of gravel road.

**Mishawaka, Ind.**—Council has passed ordinance to readvertise for bids for improving Taylor st.

**Vincennes, Ind.**—Civil Engineer Hershey has estimated to Board of Works cost of improvement of Short st. from Indianapolis ave. to Reel ave. at \$6,250.71.

**Burlington, Ia.**—Council has decided to grade, curb and pave with brick block Sycamore st.; also to lay cement walks on Washington st.

**Burlington, Ia.**—Council has passed resolution providing for paving S. Main st. with brick.

**Clinton, Ia.**—Council has passed resolution for paving 3d st. with creosoted wood blocks.

**Ft. Dodge, Ia.**—City did not let contract for constructing sheet asphalt pavement, on 5-in. concrete foundations in number of streets.—King E. Beal, City Clerk.

**Melbourne, Ia.**—Council has ordered construction of permanent sidewalks.

**Fort Scott, Kan.**—Council has passed ordinance providing for \$18,500 bonds for paving 6th st.

**Hutchinson, Kan.**—Four propositions to build improved roads to Hutchinson from various directions, extending across county, are now in petition stage, and will soon be before Board of County Commissioners.

**Independence, Kan.**—Council is considering paving of South Illinois st.

**Hopkinsville, Ky.**—Christian County is considering construction of a number of crushed limestone rock roads.—J. E. Moseley, County Engineer.

**New Orleans, La.**—Street and Landings Committee has approved plans for paving Joseph st. and banquetting Spruce st.

**Baltimore, Md.**—Council will consider paving of Linden ave.

**Baltimore, Md.**—City Engineer Fendall will ask for \$250,000 for repairs to paving during 1910.

**Easton, Md.**—Talbot and Caroline Counties are considering construction of about two miles of stone road.

**Elkton, Md.**—Town Council is having a concrete curbing and gutter laid on Whig st. as an experiment; if satisfactory, other such curbing and gutters will be laid.

**Montrose, Mich.**—Citizens have voted \$7,000 bonds for improving certain roads.

**Stillwater, Minn.**—County Board will construct a new county road from Lake Elmo through Oakdale, Baytown and Lakeland.

**Aurora, Mo.**—Lawrence County is considering construction of 50 miles of dirt and creek gravel roads. John A. Williams, County Engineer.

**Kansas City, Mo.**—Board of Public Works has passed resolutions providing for paving with asphalt portions of 41st and 34th sts., and with macadam portion of Holmes st.

**Marshfield, Mo.**—Construction of a number of rock and gravel roads is being considered. S. A. Killian, County Clerk.

**Sedalia, Mo.**—Council has passed resolution providing for paving portion of Broadway.

**Atlantic City, N. J.**—City Controller A. M. Heston will receive bids October 9, noon, for \$205,000 paving bonds.

**Bridgeton, N. J.**—Plans have been prepared for considerable amount of street improvement work to be done at once.

**Gloucester, N. J.**—Street Committee has instructed Street Supervisor John Mannion and City Surveyor A. A. Powell to prepare specifications and report at next meeting of Council, when kind of pavement for King st., the city's main thoroughfare, will be decided upon; work will be started this fall.

**Trenton, N. J.**—Council has ordered paving of Tyler st. with sheet asphaltum on 4-in. base.—H. B. Salter, City Clerk.

**Brooklyn, N. Y.**—Flatbush Taxpayers' Association is urging improvement of Coney Island ave.

**New York, N. Y.**—Surveys and maps have been prepared by Josiah A. Briggs, Chief Engineer, Bronx Borough, for completing extension of Riverside Drive through Spuyten Duyvil and Riverdale, along Spuyten Duyvil Parkway to 245th st.

**White Plains, N. Y.**—Simons & Emanuel have been awarded \$17,000 sidewalk and \$10,000 macadam bonds for \$103,157.

**Hickory, N. C.**—City has decided to improve streets; about \$65,000 to be expended. Gilbert C. White, Durham, Engineer.

**Walnut Cove, N. C.**—Lauratown Township is considering election on \$25,000 bonds for construction of six miles macadam road.

**Whiteville, N. C.**—City is considering grading and macadamizing Madison st. from city limits to Vineland.

**Williston, N. D.**—City has rejected all bids for the grading of certain streets of this place.

**Barnesville, O.**—Council is considering paving of South st.

**Berea, O.**—City has awarded \$1,250 street bonds to Bank of Berea at \$57.24 premium.

**Cincinnati, O.**—City Engineer Sundmaker has reported to Service Board estimated cost of building streets, sidewalks, curbs and gutters under Eighth st. viaduct as \$18,255.50.

**Dayton, O.**—Plans, specifications and estimates for several public improvements have been submitted to Servers by City Engineer Cellarius. For improving Euclid ave., cost is estimated at \$2,977.50; for sidewalks on both sides of Spitzer, it is 12 cts. per sq. ft.; the same estimate was given for walks on both sides of Orchard st.

**St. Clairsville, O.**—Bids for paving Bellaire-Shadyside road have been rejected by County Commissioners because of some technical error; seven bids were received and the competition was close, Archer & Day having the lowest bid, at \$25,128.20.

**St. Clairsville, O.**—City has awarded \$7,500 street improvement bonds to P. W. Dickey.

**Sandusky, O.**—City is having plans and estimates for paving Franklin st. with brick or sheet asphalt, about 12,000 sq. yds., prepared.—C. M. King, City Engineer.

**Spaulding, O.**—City has awarded \$41,000 street and \$4,000 deficiency bonds to Well, Roth & Co. at \$1,412.50 premium.

**Toledo, O.**—Bids will be received Nov. 3, 7:30 p.m., for \$100,000 general street improvement bonds.—Amos McDonnell, City Auditor.

**Toledo, O.**—Council has decided to improve Columbus st.—J. M. Babcock, Clerk.

**Youngstown, O.**—Council has decided to improve Truesdale and Bettie aves.—M. F. Hyland, Clerk.

**Durant, Okla.**—Contract for paving 1st, 2d and 3d aves. was not let, the bids all being above the estimate, \$2 per yd.

**Guthrie, Okla.**—City has advertised for bids for 36 blocks of paving.—W. W. Miller, City Engineer.

**Hobart, Okla.**—Kiowa County is considering construction of several miles of roads.

**Westville, Okla.**—Construction of about 20 miles of rock roads is being considered. A. J. Marrs, County Engineer.

**Portland, Ore.**—Council has granted petition of Laurelhurst Co. to improve their new addition by grading, laying curbing and sidewalks and asphalt pavements, and constructing sewers and water mains on every street in the tract, and instructed the City Engineer to prepare plans and specifications for that purpose.

**Portland, Ore.**—Plans are being made for paving number of streets in Mt. Tabor at cost of \$500,000.

**Allentown, Pa.**—Council has passed ordinance providing for paving St. Cloud st.

**Harrisburg, Pa.**—Council has finally passed ordinance for paving Nectarine st.; also considered ordinances for paving 18th and Evergreen sts.

**Lewistown, Pa.**—Borough has ordered construction of large number of sidewalks.

**Phoenixville, Pa.**—Town Council is considering improvement of East Bridge st.

**Reading, Pa.**—Cost of repaving 9th st. estimated at \$2,075.

**St. Clair, Pa.**—Bids will be received Oct. 6, 8 p.m., for paving, grading and curbing William st.—W. McClurg Donley, Borough Engineer.

**Sharon, Pa.**—Council is considering paving of remainder of Idaho st.

**Blacksburg, S. C.**—Citizens have voted \$15,000 bonds for street improvements and electric light plant.

**Cookeville, Tenn.**—Putnam County is considering construction of 75 miles of roads; cost, \$20,000. Sharp & Harman, County Engineers.

**Mountain View, Tenn.**—Citizens will vote Oct. 30 on \$20,000 street improvement bonds.

**Anahuac, Tex.**—Citizens have voted \$65,000 bonds for improving certain roads.

**Dallas, Tex.**—City Commission has adopted resolution ordering bids advertised for paving Cedar Springs ave.

**El Paso, Tex.**—Council has ordered election to be held Nov. 8 on proposition to issue \$110,000 bonds for opening San Antonio and North El Paso sts.

**Houston, Tex.**—Bids will be received Oct. 11, 10 a. m., for \$500,000 road and bridge bonds.—A. E. Amerman, Judge, Harris County.

**Oakville, Tex.**—Live Oak County has voted \$15,000 bonds for graded and graded roads in Precinct No. 1.

**Richfield, Utah.**—Citizens have organized permanent Good Roads Association to improve county highways.—W. S. Segmiller, Chairman.

**Salt Lake City, Utah.**—State Road Commission will soon call meeting of Commissioners of Salt Lake, Davis and Weber Counties for purpose of considering building of a model highway between this city and Ogden.—State Engineer Caleb Tanner, Secretary.

**Salt Lake City, Utah.**—County will expend \$5,000 in improvements on roads in Granite District.

**Salt Lake City, Utah.**—City will pave Fifth South st.

**Clarendon, Va.**—Alexandria County is considering \$400,000 bonds for road improvements.

**Danville, Va.**—Citizens have voted \$100,000 street improvement and bridge bonds.

**Norfolk, Va.**—City Attorney Duncan has advised Board of Control that it would be necessary to ask for new bids on paving in Westover section which Board had thought of letting out to Barber Asphalt Paving Co., of Philadelphia, on former bid of this company. Areal, 14,000 sq. yds.

**Norfolk, Va.**—For curbing and guttering in 19th st. Board of Control has asked Councils for an appropriation of \$2,112, the amount of the City Engineer's estimate.

**Ozeana, Va.**—Essex County is considering construction of two miles of sand and clay roads; cost, \$800.—Robert Hutchinson, County Supervisor.

**Cle Elum, Wash.**—City has decided to grade 3d st. at cost of \$3,600.

**Spokane, Wash.**—Board of Public Works is considering plans for paving 5th ave. with asphalt; cost \$30,000; plans are completed for paving Garfield st.; estimated cost, \$35,000; also 13th ave., \$2,875.

**Tacoma, Wash.**—Council has adopted resolutions for improvement of four streets.

**Kenosha, Wis.**—Street Assessment Committee will advertise at once for bids for paving Ashland ave. and Dayton st.

**Toronto, Ont., Can.**—Extension of Bloor st. to Danforth ave. is being considered; two viaducts over the Don and one over first Rosedale Ravine will have to be constructed; estimated cost \$619,000.

**Yorktown, Sask., Can.**—Council has appropriated \$70,000 for cement walk construction, sewerage extensions and water works.

## BIDS RECEIVED AND CONTRACTS AWARDED

**Birmingham, Ala.**—City has awarded contract to Southern Bitulithic Co., Nashville, Tenn., at \$1.80 per sq. yd. for construction of bitulithic paving on 26th st.—Maury Nicholson, City Engineer.

**Wilmington, Del.**—Levy Court has awarded contract for constructing a road from Newark to Pennsylvania State line, a distance of 2.7 miles, to B. F. Wickesham, of Kennett Square, Pa., for \$22,750.

**Atlanta, Ga.**—Following are bids opened Sept. 20 for paving with creosoted wood block Marietta and Forsyth sts., about 10,200 sq. yds.; Byron Souders, Atlanta, \$2.68 per sq. yd.; Georgia Granite Co., Atlanta, \$2.56 1-2; Thornton & Mayne, Atlanta, \$2.499, and U. S. Wood Preserving Co., New York, N. Y., \$2.47.—R. M. Clayton, City Engineer.

**Batavia, Ill.**—Arwin E. Price, of Elgin, was the only and the successful bidder for paving and macadamizing East Wilson st. at \$8.500.

**Calro, Ill.**—Roy L. Williams has been awarded contract for paving with brick, setting curbs, etc., Walnut st. and Holbrook ave., 29,569 sq. yds.; 21st st., 10,272 sq. yds., and Elm st., 4,732 sq. yds., at \$1.58 per sq. yd.—W. B. Thistlewood, City Engineer.

**Chicago, Ill.**—Lowest bid submitted by Board Local Improvements, Sept. 15, for raving with creosoted blocks on a portion of Madison st., was submitted by Alex. N. Todd, at \$27.418.

**Chicago, Ill.**—Bids were received Sept. 18 by John J. Hanberg, Commissioner Public Works, for paving 890 sq. yds. with No. 2 granite block on portion of Blue Island ave. and 15th st. Contract has been let to James A. Sackley Co., Chamber of Commerce Building, Chicago, at \$3.37 a sq. yd.—Walter G. Leininger, Engineer Bureau of Streets; M. J. Doherty, Superintendent.

**Pekin, Ill.**—The contract for the paving of South 4th and South 5th sts. was signed by the Board of Local Improvements, with Mr. Thompson, the lowest bidder.

**Peoria, Ill.**—Following bids have been received by Board of Local Improvements for paving South Fourth and Fifth sts.: A. D. Thompson, Peoria, \$45,262; Nelch & Egan, Springfield, \$47,022; J. Streffer, Springfield, \$47,157; Illinois Cement Co., Springfield, \$47,535; E. R. Harding, Racine, \$48,252.

**Rock Island, Ill.**—Board of Local Improvements has awarded contract for pav-



ing with brick Lincoln Court to Tri City Construction Co., at \$1.70 per sq. yd.  
**Springfield, Ill.**—Board Local Improvements has awarded contract for paving with asphalt a portion of Illinois st. to Capital City Construction Co., Columbus, O., at \$1.90 per sq. yd. Richard Egan has secured contract for paving with brick portion of Rutledge st., at \$1.44 per sq. yd.  
**Indianapolis, Ind.**—The City Construction Co. submitted low bid for paving 1st alley west of East st. from Merrill st. to Stevens pl., at \$1.49 per sq. yd.—B. H. Miller, City Engineer.

**Michigan City, Ind.**—The Gary Construction Co., which was high on contract for paving Gary st., was low on the second call for bids, being about \$2,000 low on Metropolitan brick, and has been awarded contract.

**Muncie, Ind.**—Board Public Works has opened bids as follows for paving an alley between Washington and Gilbert sts., from Madison st., price given per sq. yd.: Wm. M. Birch, with brick, \$2.25, with cement, \$1.51; Wm. Torrence, with cement, \$1.50, and Louis Peck, with cement, \$1.50.

**Sioux City, Ia.**—M. L. Flinn received contract for the paving of Clark st. from 4th to 8th st. at \$2.14 per yd., the Lytle Construction Co. bidding \$2.20. The Iowa Cement Brick Co. was awarded contract for curb and gutter on Summit ave. at 74¢ cts. a foot.

**Wichita, Kan.**—McIntyre & Tesse have secured contract for paving with brick portion of 13th st. at \$1.90 per sq. yd.

**Louisville, Ky.**—The Board of Public Works has awarded to the Henry Bickel Co. the contract for paving Preston st. between Fulton and Washington sts., with granite block; the Bickel bid of \$12,003 was the lowest for the contract.

**Paducah, Ky.**—S. D. Gholson has secured contract to gravel Oaks Station road.

**New Orleans, La.**—Illinois Central Railroad has awarded contract to R. S. Blome Co., New Orleans and Chicago, Ill., for paving in connection with Poydras st. terminals; portion of paving will be granitoid and portion granite block.

**Eveleth, Minn.**—Council has opened bids as follows for furnishing a 40-ton rock and roller crusher: Austin-Western Co., St. Paul, \$5,530; Peter E. Mayer & Co., \$2,210; Simmons Roller Co., Ft. Wayne, Ind., \$1,531; Monitor Road Co., New York, \$2,380; J. I. Case Co., Minneapolis, \$2,075; Troy Iron Works, \$2,345, and J. K. Ward & Co., Minneapolis, \$2,520.

**St. Paul, Minn.**—Two contracts were let by the Board of Public Works. One for curbing Minnehaha st. from Fairview ave. to Hamline ave. was awarded to St. Paul Cement Works for \$6,750; other bids were: P. J. Ryan, \$6,980; Jacob Lauer, \$7,000; Edward Fallon, \$7,030.45; O'Neil & Preston, \$7,186; D. H. Moore, \$7,300; Christ Johnson, \$9,070.20. The contract for grading Roy st. from Shields ave. to University ave. was awarded to Keough Bros for \$1,187; every bid except one was below the engineer's estimate of \$1,370.

**White Bear Lake, Minn.**—Bids were received Sept. 20 by Edward G. Krahmer, County Auditor, St. Paul, for improving Lake ave. at White Bear Lake. Contract has been awarded to William Devine, of New Brighton.

**Springfield, Mo.**—Council has awarded contract for Hassam pavement as follows to the Radcliffe-Gibson Construction Co.: Washington st., Madison st., at \$1.60, and E. Walnut st. at \$1.75 per sq. yd.

**Jersey City, N. J.**—The Street and Water Board has laid over for further consideration the bids received for repaving 15th st. with wooden blocks. The United States Wood Preserving Co. bid 85 per cent of Chief Engineer Van Keuren's standard price; the Wyckoff Paving & Creosoting Co. bid 91½ per cent. The wood block companies have refused to guarantee any more of their pavements for more than five years. The Board is undecided what to do about this. The Board has also laid over the bids for the repaving of Bergen ave., from Fairmount to Glenwood aves. and from Highland to Sip aves. This is to be a Belgian block pavement. From Glenwood to Highland aves. a wood block pavement is to be put down.

**Newark, N. J.**—Contracts for street paving aggregating \$82,918.65 were awarded by the Board of Works Sept. 23, the most important being for the repaving of Bloomfield ave. between Mt. Prospect ave. and the Belleville line, which will cost \$67,516.50, the work to be done by Van Keuren & Sons. With but one exception the rest of the jobs went to the Newark Paving Co., that concern agreeing to improve five streets for \$12,764.95. The streets and the cost of improving each are as follows: Boudinot, from Mulberry to Pine sts., \$2,285.70; Bigelow st., from Bergen st. to Seymour ave., \$4,236; Durand st., from Mulberry to Cherry sts., \$2,324.25; Nutria st., \$1,004; Pine st., from North Canal to East Park sts., \$2,915. To the Standard Bitulithic Company was given the contract to

pave Brinsmaid pl., from Hawkins to Brill sts., at a cost of \$2,637.20.

**Rochester, N. Y.**—The Board of Contract and Supply has let contract for laying asphalt on Winton rd., from East ave. to the New York Central Railroad tracks, to Whitmore, Rauber & Vicinus, for \$5,946. Elmwood ave. is to have cement walks, from South ave. to Genesee Valley Park; the Board let a contract to Henry Schoenfeldt at 8 cts. per ft., or \$1,872 for the entire job.

A short section of sewer for Frank st. was let to Whitmore, Rauber & Vicinus.

Bids for Lamberton Park resurfacing, laying water pipe and for six Ruddy gas water heaters were opened. The Rochester Railway & Light Company will furnish the heaters for \$750, complete and installed.

**St. George, S. I., N. Y.**—Bids were opened by George Cromwell, President of the Borough of Richmond, for furnishing and delivering broken stone at Tompkins ave. yard, Clifton, S. I., the lowest bidder being the Clinton Point Stone Co., \$1,550, to whom the contract was awarded; also for furnishing and delivering broken stone at stable "B," Columbia st., West New Brighton, S. I., \$1,550.

**Schenectady, N. Y.**—The Board of Contract and Supply has awarded to H. A. Sylvester the contract for paving 2nd ave. between Congress and Orchard sts.

**Syracuse, N. Y.**—A new situation in the Marcellus paving fight developed when a new lowest bid was received by the Board of Contract and Supply; the Board, however, is held up by mandamus proceedings to compel it to award the contract to the bidder who was lowest when the previous proposals were received. The first bids were received June 14, but these were rejected, and when the second proposals were received July 19 Gaffey & Byrnes submitted the lowest total bid for \$39,338. The Board refused to award the contract, and Gaffey & Byrnes, through Attorneys J. R. & F. H. Collins, secured a writ of mandamus to compel the Board to award them the contract. The Board then rejected all bids and readvertised, and F. J. Baker submitted a bid for \$37,770, which is \$1,568 lower than the bid of Gaffey & Byrnes and \$4,039.95 lower than the first lowest bid. The latest bids received follow: Warner-Quinlan Asphalt Co., Trinidad asphalt and Pennsylvania Clay Co.'s block in the railroad strip, \$42,799.60; F. J. Baker, Trinidad asphalt and Johnsonburg block, \$38,722.50; Central City Paving Co., Trinidad asphalt and Johnsonburg block, \$42,747.60; Warner-Quinlan Asphalt Co., Pennsylvania Clay Co. block, \$42,545.60; Trinidad asphalt, \$43,078; F. J. Baker, Johnsonburg block, \$37,770; Trinidad asphalt, \$40,810.50; Nicholas Marnell, Shawmut block, \$40,322.25; Central City Paving Co., Johnsonburg block, \$43,382.60; Trinidad asphalt, \$42,051.60; Charles J. Sullivan, with Jamestown block, \$39,412.50.

**Utica, N. Y.**—The Sergeant-Maxwell Co. and the Shanley Morrissey Co. have contract for construction of overcrossing Genesee crossing of N. Y. Central tracks, at \$188,167.

**Canton, O.**—The contract for the Woodland ave. improvement was re-let by the Board of Public Service to George Berger, of Massillon; the contract had been previously awarded to Downs and Campbell, of Canton, but they did not sign the contract.

Street improvement bids have been received as follows: Warner ave. improvement, Wise & Smith, George Berger, of Massillon; T. K. Turnbull & Son, and Joseph Perry, East 4th st. improvement, John Skeeles, George Berger, Wise & Smith, L. D. Burd, Joseph Perry and T. K. Turnbull & Son.

**Cincinnati, O.**—The County Commissioners have awarded contract for the improvement of Lick Run pike, from the corporation line to Dater Hill, to Joseph Gradison at \$28,755.12; there were nine bidders, and the estimated cost was \$34,394.

The Board accepted the bid of \$21,390 by J. Funke & Co., for the improvement of the Loveland and Madeira rd., between Loveland and Remington. There were eleven bidders, and the estimated cost was \$29,945.

**Toledo, O.**—The contract for repaving Broadway from Knapp to Colburn will be let to the Asphalt Block Paving Co., of Toledo, the low bidder on asphaltic materials, at a little more than \$60,000, asphalt block to be used.—Chief Engineer Consaul.

**Toledo, O.**—Board Public Service has awarded contract for paving with brick portion of Delance st. to Henry Sheehan for \$5,601.

**Youngstown, O.**—The South Shore Construction Co., of Erie, Pa., was the successful bidder for contract to build Youngstown and Canfield macadam road, at \$17,680.18; State's estimate was \$18,448. G. A. Gialdina & Co., of Girard, were next lowest bidders, their figure being \$17,999. S. H. DeGroodt, this city, offered to build the

road for \$18,000. All told seven bids were submitted, all being considerably over \$18,000 except that of the successful bidder and Mr. Gialdina.

**McAlester, Okla.**—Bids for paving the brick district in the First Ward were opened; this contract had been formerly let to McEachin & Enloe, but had to be re-advertised. The bids received Sept. 23 were as follows: E. J. Overly & Co., Joplin, Mo., \$97,957.24, awarded contract; Stuckey Construction Co., Muskogee, \$113,279.45; Federal Engineering and Construction Co., Okmulgee, \$101,198.18; McEachin & Enloe, \$108,581.58.

**Portland, Ore.**—City Executive Board has awarded contract for paving with asphalt portions of Gilsan and 20th sts., to Barber Asphalt Paving Co., at \$1.97 1-2 per sq. yd.

**Altoona, Pa.**—William Hartsock has secured the contract for laying cement sidewalk around the three sides of the St. Mary's cemetery, to consist of 4,675 sq. ft. and 935 ft. of curbing.

**Butler, Pa.**—Contracts have been awarded as follows: New Castle st. to N. J. Boyer, approximate cost \$2,100; Liberty ave. to John Schaffner, approximate cost \$1,700; West Penn st. to John Schaffner, approximate cost \$2,100.

**New Brighton, Pa.**—J. G. McGuire & Co., city, have been awarded a contract for laying 4,300 sq. yds. brick pavement, on 8-in. ballast, at \$1.20 per sq. yd., also 2,150 cu. yd. excavation at 38¢; 2,100 lin. ft. concrete curbing, 50¢ per lin. ft.; 800 lin. ft. stone curbing, 50¢ per lin. ft.; resetting old curb, 20¢ per lin. ft.; total bid, \$7,700. F. C. Rourke, Secretary of Council.

**Philadelphia, Pa.**—Bids for macadamizing country roads, for which \$150,000 is available, were received by the Department of Public Works from David McMahon, Hassam Paving Co., Bolger & Cummings, E. M. Seeds, R. P. Bennis, John J. Conner, Costello & Co., J. F. Shanley Co., Filbert Paving & Construction Co., David Peoples and Jacob H. Young. Bids were submitted for nine different types of road making material. The bids were referred to be scheduled.

**Pittston, Pa.**—McConville & Fitzpatrick, 135 S. Main st., Pittston, have secured contract for 15,839 sq. yds. brick paving, with Pittsburgh Buffalo brick, at Pittston, for \$32,658; they also secured contract for 750 yds., with Nay Aug brick, at Dunmore, for \$3,017.

**York, Pa.**—The Filbert Paving Co., Philadelphia, Pa., has been awarded a contract for Paving West Market from Beaver to Water with sheet asphalt at \$1.75 per sq. yd. The Barber Asphalt Co. bid \$1.78. Both the Barber Asphalt Co. and the Filbert Paving Co. bid \$1.78 per sq. yd. for paving West Mason alley.

**York, Pa.**—The General Supply and Construction Co. has been awarded contract for about 2,500 ft. of curbing on the sections of Hartley and Penn sts. and Linden ave. which are to be paved this fall; contract for 12,000 sq. ft. of paving on West Gas alley between Manchester st. and West York ave. has been awarded to the General Supply and Construction Co. by the York Manufacturing Company; Mack block will be used.

**Dandridge, Tenn.**—Jefferson County Pike Commission has awarded contract for constructing macadam roads, cost \$175,000, to F. E. Brady, of Knoxville.

**Knoxville, Tenn.**—Kettle River Quarry Co., of Minneapolis, Minn., has secured contract for paving with creosoted blocks portions of several streets, at \$37,182.

**Smithville, Tex.**—City has awarded contract for graveling Main st. and two blocks on Second and Third sts.; two blocks on Main st. and two on Second st. will have cement gutters.

**Ogden, Utah.**—Contracts for sidewalk improvements in districts Nos. 101 and 102 were let by the Council. Bids for the work in district No. 102 were: Fackler & Childs, \$10,876.32; W. J. Moran, \$11,330.36, and the Wheelwright Construction Co., \$9,954.53. The Wheelwright Co. was awarded the contract. Three bids were submitted for the work in sidewalk district No. 100, as follows: W. J. Moran, \$1,775.46; William Doyle, \$1,970, and the Wheelwright Construction Co., \$1,960; Contractor Moran was awarded the contract.

**Norfolk, Va.**—The Board of Control has awarded to P. J. Looney the contract for furnishing and laying combined curb and gutters on Westover ave. and other streets in the Westover section, at 52 cts. per lin. ft. for the curb and gutters, and 75 cts. per lin. ft. for Walkwright corners.

**Bellingham, Wash.**—J. Lich has secured contract for constructing concrete sidewalks on portion of Broadway for \$5,873.

**Olympia, Wash.**—Bids were received on Sept. 15 by State Highway Board, Henry L. Bowby, Secretary, for clearing, grubbing, grading and graveling State Aid Road No. 4. Contract has been let to Mills Bros., at \$13,000.

**Seattle, Wash.**—Councilman J. T. Armstrong, of the 13th Ward, advised the Board

of Public Works that the property owners along Market st. in Ballard preferred asphalt to brick paving, and on this recommendation the contract was awarded to the Barber Asphalt Paving Co. at \$92,909.35. Other contracts awarded were as follows: 32d ave. water mains, C. W. Coit & Co., \$5,214.46; Lakedell ave. grading, S. Normile, \$11,050; 2d ave. West, paving, Barber Asphalt Paving Co., \$47,345.10; 22d ave. paving, Independent Asphalt Paving Co., \$2,301.15; Pinellas place, concrete walks, W. H. Smith & Co., \$12,877; 20th ave. Northwest, planking, \$2,147.25.

**Tacoma, Wash.**—The Keasal-McDowell Logging Co. has been awarded a contract by Commissioner of Public Works H. J. McGregor to grade North 26th st. between Proctor and Orchard sts. for \$9,450; only the one bid was received.

**Walla Walla, Wash.**—Bids were submitted by the Rich & Harris Construction Co. for paving of approaches to, and including 4th st. bridge, and bid was accepted.

**Wheeling, W. Va.**—The Special Committee opened the bids for paving of left-hand branch of Caldwell's run, and awarded contract to the J. E. Wright Co. of this city.—A. S. Bell, County Engineer.

**Janesville, Wis.**—P. W. Ryan, city, has been awarded contract for macadamizing and setting cement curb and gutter on Ravenna st. for \$5,032; other bids ranged to \$7,040.

**Racine, Wis.**—The contract for paving Fifth st. has been awarded by the Board of Public Works to the N. F. Reichert Co., that firm being the lowest bidder of three local contractors. The contract price is \$1.92 per sq. yd. for the pavement and 35 cents per lin. ft. for curbing; the street will be paved with vitrified brick on standard concrete foundation, with a combination curb and gutter of cement; the other two bidders for the contract were the E. R. Harding Co. and R. R. Birdsall. The Board also opened bids for building twelve cement sidewalks where people had failed to take notice of the orders of the Board; five were awarded to Anderson & Johnson and one to the Theodore Pier Co.; action on the other six was deferred.

## SEWERAGE

**Anniston, Ala.**—Surveys and plans for proposed sanitary sewerage are being prepared by Henry C. Allen; about 15,000 feet, 8, 10 and 15-in. additional sewerage will be purchased.

**Attalla, Ala.**—Town is still considering matter of sewerage system.—P. Tucker, Town Clerk.

**Searcy, Ark.**—City will organize sewer and water works district. E. A. Robbins, J. F. Headlee and George C. Thomas, Commissioners.

**Oakland, Cal.**—Council has ordered construction of sewers in Idaho and 15th sts.

**Willows, Cal.**—Town Trustees have passed ordinance pertaining to sewer system and have specified that property owners shall have eighteen months in which to make connection with mains.

**New Haven, Conn.**—Committee on Sewers is considering enlargement of present filtration beds at the Springfield Home; cost about \$5,000.—C. W. Kelly, City Engineer.

**Golden, Colo.**—Residents north of Clear Creek have asked that sanitary sewer district be established.

**Key West, Fla.**—Citizens will vote Nov. 9 on \$240,000 bonds for improving sewer system and for street paving.

**Madison, Fla.**—Sewerage Engineers have completed second survey of town and their work has been accepted by Council; contract will be let for this \$25,000 system as soon as money is received for bonds, which have been sold.

**Glencoe, Ill.**—City is having plans and estimates prepared for building sewage disposal plant.

**Lockport, Ill.**—City will employ engineer to prepare preliminary plans for construction of new sewer system.

**Boone, Ia.**—Contract will be let next month for proposed vit. clay sewer.—Otto Hile, City Clerk.

**Burlington, Ia.**—Council has decided to construct vitrified pipe sewer on Mount Pleasant and other streets.

**Indianola, Ia.**—Bids will soon be received for construction of sewerage system.

**Missouri Valley, Ia.**—Council has decided to take immediate steps for installing sewer on detailed report by Professor Marston of Ames College.

**Shenandoah, Ia.**—Council is considering construction of sewers on seven streets.

**Traer, Ia.**—Council is considering construction of number of sewers.

**Lexington, Ky.**—Court of Appeals has declared legal \$25,000 sewer bonds voted in November, 1908.

**Lexington, Ky.**—Board of Public Works is considering construction of sewer on South Limestone st.

**New Orleans, La.**—Chairman Theard and Messrs. Ellis and Hotard, of Finance Com-

mittee of Sewerage and Water Board, have adopted resolution requesting Board of Liquidation to advertise for sale of \$3,000,000 of public improvement bonds; it is the idea of making this sale for \$3,000,000 of the bonds, so as to enable Board to go forward with the completion of sewerage and reinauguration of drainage work; money will also be used for house connections.

**New Bedford, Mass.**—Council has ordered \$10,000 of sum appropriated for purpose of sewer construction and disposal apportioned for disposal of sewage now discharging into Clark's Cove.

**Sault Ste. Marie, Mich.**—Council has accepted the report of Board of Public Works for construction of the Elm st. sewer; cost \$14,800.

**Alexandria, Minn.**—City will construct sewer on Main st. and build two septic tanks; estimated cost, \$5,000.

**Red Wing, Minn.**—Council has decided to construct trunk sewer in West End.

**Columbia, Miss.**—Citizens have voted \$6,000 bonds to extend sewer and water systems.

**Hebron, Neb.**—Citizens have voted \$12,000 bonds for extension of water works system.

**Heilon, Neb.**—City is considering installation of a sewerage system.

**South Amboy, N. J.**—Council has introduced ordinance to authorize laying of a system of sanitary sewers through city and to provide payment therefor.

**Batavia, N. Y.**—Aldermen will fix new date for opening bids for sewer bonds, and to authorize advertising for new proposals; bids received, which were opened Sept. 25, were considered too low and rejected; issue will be for \$350,000 or \$375,000; best bid was that of N. W. Harris & Co., of New York; bid was interest at the rate of 4.21 per cent and a premium of \$758 on the whole amount; there were ten bidders, all from New York City.

**Fulton, N. Y.**—Mayor Edward Quirk has received following estimate of cost of constructing towpath sewer from City Engineer O. C. Breed: Total estimate cost through lock and connecting up at both ends, \$16,000, if not permitted through lock; pumping plant and disposal works, \$35,000, plus cost of land, \$1,000; yearly cost of operation, \$3,000; total, \$39,000.

**Newburgh, N. Y.**—Council has decided to construct sewers in three streets.—D. J. Coutant, City Clerk.

**Oneonta, N. Y.**—State Board of Health has ordered plans for sewage disposal plant filed before April 1, 1911.

**Phoenix, N. Y.**—Town is considering sewerage extension.

**Sanford, N. C.**—City has selected Gilbert C. White, Durham, N. C., as engineer for sewer construction; \$25,000 bond issue.—T. L. Chisholm, Mayor.

**Akron, O.**—Bids will be received by Board Public Service for constructing sewers in portions of three streets.—R. H. Hamlin, Secretary.

**Barnesville, O.**—City is considering construction of sewer system.

**Carthage, O.**—Citizens have voted \$32,500 bonds for a sewer system and disposal plant.—Clinton Cowen, County Engineer's Office, Cincinnati, Engineer.

**East Liverpool, O.**—Bids will be received Oct. 7 by Board of Public Service for constructing 6-in. sewer in Blakely st. with 4-in. laterals, manholes and flush tank.—A. S. Hughes, Clerk.

**Hamilton, O.**—City has decided to construct sanitary sewer in West Main st.—Thad. Straub, Mayor.

**Millcreek Valley, O.**—Village will vote on \$75,000 bonds for the installation of a sewerage system and other improvements.

**Sandusky, O.**—Plans and estimates have been prepared for constructing 24-in. storm water sewers 2,100 ft. long in Venice rd.; cost \$2,500.—C. M. King, City Engineer.

**Youngstown, O.**—City has decided to construct sewer in Darrow st.—M. F. Hyland, Clerk, Council.

**Ada, Okla.**—Plans have been completed by City Engineer P. G. Ekman for about 5 miles of lateral sanitary sewers; contracts will be let about Oct. 20.

**Guthrie, Okla.**—Citizens will vote on \$20,000 bonds for construction of storm sewers.

**Lawton, Okla.**—Department of Interior, Washington, D. C., has appropriated \$25,000 for sewer system for the north addition.—John D. Kennard, Engineer.

**Caldwell, Ore.**—City has decided to install sewerage system which will cover about 110 blocks; cost about \$75,000.

**Portland, Ore.**—Laurelhurst Company will improve their new addition by constructing sewers; plans will be prepared by City Engineer D. W. Taylor.

**Guthbert, Pa.**—City will hold election on bonds for installation of a sewerage system.

**Harrisburg, Pa.**—Council is considering construction of sewers in four streets.

**Huntingdon, Pa.**—Pennsylvania Industrial Reformatory has rejected all bids for construction of sewage disposal plant and storm water sewers.—T. B. Patton, Gen-

eral Superintendent; J. Murray Africa, Engineer.

**Ligonier, Pa.**—Borough is considering construction of sewer system.

**Nanticoke, Pa.**—The city is planning construction of sewage disposal plant; cost about \$60,000.

**Oil City, Pa.**—State Health Commissioner Samuel G. Dixon has granted extension of the time in which city may plan and build sewage disposal works.

**St. Clair, Pa.**—Borough has sold \$90,000 bonds for installation of sewer system.

**Scranton, Pa.**—Council is considering construction of tunnel relief sewers at cost of \$17,000.

**Salem, S. D.**—Citizens have voted to construct sewer system.

**Chattanooga, Tenn.**—Board of Public Works will soon advertise proposals for construction of cross-town sewer, with pumping station; \$100,000 available.—Robert Hooke, City Engineer.

**Brownsville, Tex.**—Brownsville Sewerage Company will apply for charter with capital of \$30,000, which has already been subscribed.

**Houston, Tex.**—Consulting Engineer F. L. Dormont has prepared plans for sanitary sewers to be constructed in Fifth Ward; cost about \$85,000.

**Lufkin, Tex.**—Bids for purchase of \$10,000 bonds for the construction of a sewer system will be received on Nov. 1.—L. H. Gray, City Secretary.

**Wharton, Tex.**—Citizens have voted \$8,000 bonds for construction of sewers and the improvement of certain streets.

**Salt Lake City, Utah.**—Council has ordered City Engineer to prepare estimate of cost of 6-ft. conduit from 6th ave. in City Creek Canyon to State st.; about \$20,000 will be expended.—J. S. Bransford, Mayor.

**Fort Warden, Wash.**—City has had plans and specifications prepared for construction of sewerage system; cost about \$12,000.

**Tacoma, Wash.**—Bids are now being received for two concrete pipe sewers and one reinforced concrete sewer; total cost about \$60,000.—W. C. Raleigh, City Engineer.

**Tacoma, Wash.**—Council has adopted resolutions providing for construction of storm sewers in four streets.

**Wenatchee, Wash.**—City proposes to construct sewer system; cost about \$400,000.—C. C. Ward, Engineer.

**Grafton, W. Va.**—Kingwood will vote on bonds for installation of sewerage system.

**Moundsville, W. Va.**—City is considering installation of sewerage system.

**Rowlesburg, W. Va.**—C. C. Pierce is considering installation of sewer system.

**North Fond du Lac, Wis.**—Village Trustees are considering plans for sewer system.

**Kenosha, Wis.**—Plans are being prepared for the construction of sewers; cost \$80,000, material included.—Robt. Moth, City Engineer; J. W. Alvord, Chicago, Ill., Consulting Engineer.

**West Allis, Wis.**—City will readvertise for bids for constructing about 55,000 lin. ft. of pipe sewers and 173 manholes.—L. F. Fish, City Clerk.

**Yorktown, Sask., Can.**—Council has appropriated \$70,000 for sewerage extension, cement walk construction and water works.

## BIDS RECEIVED AND CONTRACTS AWARDED

**Ft. Morgan, Ala.**—Contract for constructing terra-cotta pipe sewer and iron outfall pipe, bids opened Sept. 20, has been awarded to M. T. Judge, of Mobile, for \$2,960.—Capt. H. B. Chamberlin, Quartermaster, U. S. A.

**Washington, D. C.**—Contracts for pipe sewers, bids opened Sept. 27, have been awarded as follows: Extension of storm water outlet of Anacostia trunk sewer and Piney Branch sewer to Warren F. Brenizer Co. at \$9,250 and \$2,088, respectively; for Section F of East Side intercepting sewer to Jas. A. Coyle, \$5,215, and for Section G to E. G. Gummel, \$5,455.—Asa E. Phillips, Superintendent of Sewers.

**Lyons, Ill.**—P. McDonnell has been awarded contract, at \$200,000, for laying sewer and water mains.

**West Lafayette, Ind.**—N. B. Moore has been awarded contract, at \$5,500, for laying vitrified sewer pipe system, including manholes, lampholes and catch basins.

**Clarinda, Ia.**—Contracts for constructing sewers, bids opened Sept. 14, have been awarded as follows: To the Independent Construction Co., of Davenport, at 52 cts. and 59 cts. per lin. ft., and to Dunnegan & Cary, of Shenandoah, for 18-in. sewer, 84 cts. per lin. ft.—C. W. Stuart, City Clerk.

**Louisville, Ky.**—T. B. Jones & Co., St. Louis, Mo., has secured contract for constructing Section D. of Southern outfall sewer, Contract 56, bids opened Sep. 17, for about \$45,000.

**New Orleans, La.**—Illinois Central Railroad has awarded contract to Phillips &



Jonah for subsurface drainage in connection with Poydras st. terminals.

**Portland, Me.**—Contract for sewers, Sec. 5 of the West Side Intersecting sewer, Deering Center branch sewer, bids opened Sept. 20, has been awarded to John W. Gulliver, Union Medical Bldg., for \$5,847. —Bion Bradley, Jr., Commissioner of Public Works.

**Boston, Mass.**—Mayor Hibbard has signed the contract made by Supt. Emerson with William J. Barry for the construction of section 6 of the Stony Brook conduit at \$147,641.25. Mr. Barry was the lowest of several bidders; contract was first awarded to Coughlan & Sheils, the second lowest bidder, at \$148,843 by Supt. Emerson, but on recommendation the low bidder secured the job.

**Stromsberg, Neb.**—Bids were opened Sept. 15 by Stromsberg Sewer Co. for constructing a sanitary sewer system requiring 16,342 lin. ft. 6, 8, 10 and 12-in. pipe, 33 manholes, 5 flush tanks and concrete outlet, and the contract has recently been awarded to H. C. Gardener, of Lincoln. —Grant & Litton, F. & M. Bldg., Lincoln, engineers.

**Belmar, N. J.**—Contract for furnishing material and constructing certain sewers and disposal works, bids opened Aug. 24, has been awarded to the Wormser-Goodman Constr. Co., 2 Rector St., New York, N. Y.; total cost, \$22,000.

**Schenectady, N. Y.**—Kellam & Shafer were awarded contract for laying storm sewers in Pleasant st.

**Canton, O.**—Bids have been received by the Board of Public Service on a number of new improvements as follows: Klorer and Belden aves., sanitary sewer, John Skeeles, Joseph Perry, L. D. Burd and T. K. Turnbull & Son; East Lake st., sanitary sewer, John Skeeles, L. D. Burd and Joseph Perry; Cedar st. and Clifford ave., storm sewer, Wise & Smith, John Skeeles, L. D. Burd, Joseph Perry and T. K. Turnbull & Son; Bell ave., storm sewer, John Skeeles, Joseph Perry and L. D. Burd; Dueber ave., storm sewer, John Skeeles, L. D. Burd, Downs & Campbell, Joseph Perry, Wise & Smith and T. K. Turnbull & Son.

**Dayton, O.**—Earl Vanbeck, of Zanesville, was low bidder over local men for constructing \$3,300 storm water sewer in Hartford st.

**Grove City, O.**—Henderson & Houston, of Logan, have secured contract for installing sewerage in the town of Grove City in Franklin County; the cost to the town will be \$2,000.

**Enid, Okla.**—Contracts for constructing storm sewers, bids opened Sept. 17, have been awarded as follows: To Reardon & Maskylene, of Enid, for Cherokee ave. sewer of reinforced concrete, \$38,997, and to Starkey & Lee, of Perry, for 2-ring brick sewer on Elm ave., at \$21,523. —J. P. Rickard, City Engineer.

**Guthrie, Okla.**—W. F. Powers, this city, has been awarded contract for construction work in Sewer District No. 52, between Vilas and Springer aves., Capitol Hill, at \$1,667.50; Mr. Powers was the only bidder on the work.

**Connellsville, Pa.**—Bids for the sewerage of the Davidson-Newmyer addition, five in number, were opened and the contract was let to Jones Brothers, of Pittsburg, whose bid was about 20 per cent lower than any other. The Jones Brothers' bid was: Sewer, 15-in., 75 cts. per ft.; 12-in., 70 cts.; 10-in., 65 cts.; 8-in., 60 cts.; manholes, \$25 each and lamp holes, \$7 each; other bidders were P. J. Flynn and Hiramman & Guard, Connellsville; Westmoreland Construction Co., Greensburg, and J. I. Dick, Scottdale. The bids were:

Flynn—15-in. sewer, \$1 per ft.; 12-in., 90 cts.; 10-in., 80 cts.; 8-in., 76 cts.; manholes, \$35, and lamp holes, \$10.

Westmoreland Construction Co.—15-in. sewer, \$1 per ft.; 12-in., 90 cts.; 10-in., 80 cts.; 8-in., 70 cts.; manholes, \$41; lamp holes, \$15.

Hiramman & Guard—15-in. sewer, 95 cts.

**Omaha, Neb.**—Tabulation of bids for sewer received Sept. 27 by George W. Craig, City Engineer. Dry clay soil. No paving laid.

| CONTRACTOR               | SEWER DISTRICT 394<br>Martha St. from 19th to 17th St., thence S.<br>to Vinton St. |                           |                          |                               |   |                 | SEWER DISTRICT 395<br>Parker St. from 34th to 37th Sts. |                           |   |   |                               |                 |
|--------------------------|--|---------------------------|--------------------------|-------------------------------|---|-----------------|---|---------------------------|---|---|-------------------------------|-----------------|
|                          | 1,119<br>ft.<br>24"<br>Pipe  | 437<br>ft.<br>12"<br>Pipe | 420<br>ft.<br>8"<br>Pipe | 51 v.<br>ft.<br>Man-<br>holes | 2,060<br>lbs.<br>Cast<br>Iron<br>M. H.<br>cov's | Total<br>of Bid | 426<br>ft.<br>10"<br>Pipe                               | 418<br>ft.<br>12"<br>Pipe | 378<br>ft.<br>18"<br>Pipe<br>Wet<br>dig'g | 35 v.<br>ft.<br>Man-<br>holes<br>M. H.<br>cov's | 2,060<br>lbs.<br>Cast<br>Iron | Total<br>of Bid |
| Average depths ft. . .   | 14   | 12                        | 11                       |                               |   |                 | 11  | 8                         | 8   |   |                               |                 |
| Jas. Jensen . . . . .    | \$3.10   | \$0.86                    | \$0.68                   | \$3.25                        | \$0.03  | \$4,357.87      | \$0.68  | \$0.72                    | \$1.25                                    | \$3.25  | \$0.03                        | \$1,238.69      |
| McKay & Cathroe . . . .  | 2.18   | .72                       | .57                      | 3.50                          | .03   | *3,233.76       | .57   | .69                       | 1.12                                      | 3.75  | .03                           | 1,147.65        |
| J. J. Hanighen . . . . . | 2.48   | .83                       | .62                      | 4.00                          | .03   | 3,664.03        | .46   | .51                       | .94                                       | 3.65  | .03                           | *954.01         |
| H. J. Petersen . . . . . | 2.50   | .76                       | .53                      | 3.75                          | .03   | 3,605.27        | .57   | .63                       | 1.08                                      | 3.50  | .03                           | 1,098.70        |

\*Awarded contract.

per ft.; 12-in., 91 cts.; 10-in., 83 cts.; 8-in., 76 cts.; manholes, \$30; lamp holes, \$5.

J. I. Dick—15-in. sewer, \$1.55 per ft.; 12-in., \$1.35; 10-in., \$1.15; 8-in., 85 cts.; manholes, \$35; lamp holes, \$15.

**Wernersville, Pa.**—Bids were opened by the Board of Trustees of the State Asylum for Chronic Insane, Sept. 20, for construction of a sewage disposal plant and connections to the existing sewer system, and contract has been awarded to E. C. Bratton, of Lewistown and Philadelphia, for \$18,265. Other bids received were: W. H. Operman, Harrisburg, Pa., \$22,764; N. Y. Sewage Disposal Co., New York, N. Y., \$19,078; Field, Barker & Underwood, Philadelphia, \$20,785; J. N. Bastress & Co., Harrisburg, \$20,170; P. L. Scholl, Reading, \$21,532; O'Toole & Dempsey, Philadelphia, \$19,999; Thomas & Watkins, Woodbury, N. J., \$18,465; W. H. Mengerhausen & Co., Catasauqua, \$20,042. Engineer's estimate, \$21,476.

**York, Pa.**—Awards of contracts for the laying of sewer laterals to permit street paving were made by the new Board of Public Works to Garrety Bros. and the General Supply and Construction Co. The bid of Garrety Bros. for the West York ave. work was \$1,385.51. Those of the General Supply and Construction Co. for the contracts they were awarded were: West Poplar st., \$75.04; West Princess st., \$575.64; East Market st., \$272.38. The bids submitted were for 6-in. t.c. pipe, house laterals and "Y" branches, including cap. For the work on West Poplar st., West York ave. and West Princess st. the bids of Garrety Bros. were: 63 cts. per ft. for t.c. pipes, 40 cts. apiece for Y branches, \$2 per cu. yd. for rock excavation. The bids of the General Supply and Construction Co. for the same streets were: 52 cts. per ft. for t.c., 49 cts. apiece for Y branches, \$3.25 per cu. yd. for rock excavation. The bids for 350 ft. 8-in. t.c. pipe main for East Market st. were: Garrety Bros., 78 cts. per ft., 40 cts. apiece for Y branches, \$2 per cu. yd. for rock, \$35 for manhole; General Supply and Construction Co., 64 cts. per ft. for pipe, 49 cts. apiece for Y branches, \$3.25 per cu. yd. for rock and \$42.50 for manholes.

An additional contract to extend the sewer laterals on West Market st., where the street is being widened, was awarded to the General Supply and Construction Co. at 52 cts. per ft. for pipe, 49 cts. apiece for Y laterals and \$3.25 per cu. yd. for rock. The totals of the bids for the work on the several streets are as follows: General Supply and Construction Co., West Poplar st., \$75.04; West York ave., \$1,938.79; West Princess st., \$575.64; East Market st., \$272.38. Garrety Bros., West Poplar st., \$86.59; West York ave., \$1,385.51; West Princess st., \$678.34; East Market st., \$345.40.

**Greenwood, S. C.**—City has awarded contract to Greenwood Hardware Co., Greenwood, for proposed extension of sewerage system; 6,000 ft. trunk line; plans by Thos. W. Cothran, Greenwood. —W. G. Calhoun, City Clerk.

**Salt Lake City, Utah.**—The contract between the city and Davis & Heuser for a sewer on State st. from Hillside ave. to Second North st. has been approved by Mayor John S. Bransford, and the work will be started at once; extension also contemplates work on West Canyon road, to be done early next year, and the whole contract will cost approximately \$35,000.

**Portsmouth, Va.**—City has instructed City Attorney to employ assistant counsel to draft a contract with the Shone Co. to supply sewage ejectors for the 5th Ward sewerage system.

**Richmond, Va.**—City has awarded contracts for construction of sewers as follows: Williams and Christian sts., Cheatwood & Clay, at \$10,332; Christian st., extended and other streets, same contractor, at \$18,005; Oakwood ave., H. L. Driscoll, at \$10,223. Both contractors of Richmond.

**Bellingham, Wash.**—Contract for constructing a trunk sewer on Lottie, Dupont

and C sts. has been awarded to Riddle & Hawkin for \$6,012.

**Janesville, Wis.**—Cochems & Nehl have been awarded contract for constructing sewers in District 11, 12 and 14, for \$4,417, while other bids ranged to \$5,290.80.

**Racine, Wis.**—Contract for building a sewer on Marquette st. was awarded to Andrew Thomsen, who entered his bid at 90 cts. per lin. ft. for 8-in. pipe and \$40 per manhole, over the bid of N. F. Reichert for 95 cts. per lin. ft. for the pipe and \$40 per manhole.

## WATER SUPPLY

**Blytheville, Ark.**—Council has decided to let franchise for water works system.

**Fort Smith, Ark.**—Plans have been completed for the extension of the water works system; plans include additional trunk main from the reservoir to the upper Garrison ave. trunk main; also number of main extensions are provided for, to extend the service into sections of the city not now supplied with city water.

**Searcy, Ark.**—City Council has selected E. A. Robbins, J. F. Headlee and George C. Thomas as commissioners for water works and sewer districts.

**San Francisco, Cal.**—Board of Supervisors will purchase plant of County Line Water Company; mains will be extended.

**Hartford, Conn.**—Board of Public Works has recommended that a water main be placed from Rocky Hill ave. and in Shuttle Meadow ave. to intersection with Corbin ave. and 200 ft. in Corbin ave.

**New Britain, Conn.**—Water Board will at once ask bids for 7,000 ft. of 16-in. pipe which will be necessary for construction of stand pipe; cost about \$35,000.

**Fort Pierce, Fla.**—Council is considering \$100,000 bonds for water works.

**Boise, Ida.**—Board of Public Works will purchase and lay 900 ft. of concrete piping; cost \$1,125.

**Sterling, Ill.**—City has selected C. H. Green to secure data for an adequate water works system.

**Kansas City, Kan.**—City has sold \$400,000 bonds for improvement of water plant to Trowbridge & Meyer, Chicago, Ill., at premium of \$15,500.

**Mound Valley, Kan.**—City Council is considering the installation of a water works system.

**Nickerson, Kan.**—Election on \$35,000 water and electric light bonds has been postponed.

**Pratt, Kan.**—City has made arrangements to lay about three miles of new 4 and 6-in. mains and erect a new 100,000-gal. steel water tank; cost of the tank and water main extension will be close to \$20,000.

**Salina, Kan.**—Council has called a special election for Nov. 2 to vote on proposition of city purchasing local water works plant.

**Alexandria, La.**—City Board of Aldermen has sold \$40,000 water works and electric light bonds to Ulen, Sutherland & Co., of Chicago.

**New Iberia, La.**—Board of Electric Lights and Water Works is considering ordering tax for erection of modern water and light plant.

**Winnfield, La.**—Citizens have voted \$15,500 water works bonds.

**Stonington, Me.**—City is perfecting plans for water works system.

**Ocean City, Md.**—City has decided to erect at once a building of concrete and iron to replace pumping station destroyed by fire.

**Salisbury, Md.**—Wicomico County Commissioners and Salisbury Council will share cost of rebuilding Humphreys' mill dam bridge, work on which will be begun at once.

**Mattapoisett, Mass.**—Citizens are considering construction of water works.—Dr. Irving N. Tilden is interested.

**Brainerd, Minn.**—Citizens have voted to purchase water plant of Minnesota Water Works Company.

**Minneapolis, Minn.**—Andrew Rinker, City Engineer, has asked Park Board for small tract of land on Kenwood blvd. upon which to build water tower for the Lowry Hill district.

**Centerville, Miss.**—City will receive bids for drilling well, 130 ft. deep, for water works system.—Dr. J. C. Robert, Mayor.

**Laurel, Miss.**—Council has ordered laying of 10,600 ft. of 6-in. water main and 1,200 ft. of 8-in. main in connection with plans for extending and improving water works system.

**Malden, Mo.**—Plans are being prepared by Engineers Archer, Rollins & Co., Beals bldg., Kansas City, for system of water works to cost \$22,000.

**Moberly, Mo.**—Plans are being prepared by L. G. Knapp & Co., Kansas City, for water works; cost about \$150,000.—J. F. Curry, City Clerk.

**Harlowton, Mont.**—Frank Goss, Ben. Urner and A. J. Dreyer have been appointed

committee to investigate cost of installing water works system.

**Superior, Neb.**—Council has passed ordinance appropriating \$12,500 for extension of its water system and will erect stand-pipe.

**Wolbach, Neb.**—Citizens have voted bonds for installation of water works system.

**Andover, N. J.**—Borough Council is considering construction of water works.

**Netcong, N. J.**—Mayor and Council has sold \$35,000 issue of bonds for purchase of plant of Rockland Water Company to Sussex National Bank of Newton for one-half of one per cent. premium.

**Red Bank, N. J.**—City will receive bids for construction of addition to the water works.—W. A. Shoemaker, Broad and Monmouth sts., architect.

**Albion, N. Y.**—Board of Village Trustees is discussing water question.

**Niagara Falls, N. Y.**—Bids will be received Oct. 6 for construction of pumping station.

**North Pelham, N. Y.**—City will lay 6-in. water pipe on 6th st. and 3d ave.

**Painted Post, N. Y.**—Citizens will vote Oct. 9 on \$10,000 additional water works bonds.

**Waverly, N. Y.**—Plans are being prepared by C. W. Knight, Rome, for reservoir for Waverly Water Company.

**Andrews, N. C.**—Citizens have voted \$20,000 bonds for water works.—H. N. Wells, Mayor.

**Charlotte, N. C.**—Surveys and estimates have been ordered for pipe line to river.—Jos. Firth, City Engineer.

**Mansfield, O.**—City will construct pumping station and lay water main from Hedges Springs; cost \$12,000.—W. S. Bradford, City Auditor.

**Portsmouth, O.**—City has decided to extend supply service up Malbert rd.

**Steubenville, O.**—Sanitation Committee of Business Men's Association is urging election on bonds for building filtration plant.

**Cheyenne, Okla.**—Board of City Trustees is considering construction of water works; cost \$25,000.

**Guthrie, Okla.**—Citizens will vote on \$50,000 bonds for extension of water mains and for installation of additional filters.

**Tulsa, Okla.**—City Commission will recommend building of large reservoir in Osage Nation Valley.

**Waukonis, Okla.**—Citizens have voted to issue \$20,000 bonds for construction of water works.—Roy M. Barnett, City Clerk.

**Portland, Ore.**—Laurelhurst Company will improve their new addition by constructing water mains; plans will be prepared by City Engineer D. W. Taylor.

**Carbondale, Pa.**—Pioneer City Water Company has asked for franchise to lay and maintain water mains and pipe on streets, etc.

**Ford City, Pa.**—Borough will install 500 to 800 water meters at once; address Box 9.

**Harrisburg, Pa.**—Asking permission to spend \$55,000 out of its earnings. Water Department has submitted its plans for proposed pumping station and new reservoir at Reservoir Park for purpose of supplying water to the Haehten tract and Eastmere, sections of which are higher than the present reservoir; new reservoir will be 106 ft. higher than the present one.

**New Kensington, Pa.**—New Kensington Water Company will establish mechanical filtration plant at a cost of \$75,000 to furnish New Kensington, Arnold and Parnassus with filtered water.

**Shamokin, Pa.**—Ringtown Water Company has been chartered by Jas. Bankes, Ringtown; W. A. Gelser and N. B. Gelser, of Paunos, and Grant Herring and H. W. Cummings, of Sunbury; artesian wells will be drilled and water pumped into reservoir from which town will be supplied by gravity.

**Reading, Pa.**—Spring has been purchased in Spring Township, Berks County, which will be connected by pipes with the Denver water system in order to increase that town's supply.

**Darlington, S. C.**—Darlington Water and Electric Company has been incorporated by P. A. Willcox and W. M. Hainesworth.

**Kimball, S. D.**—Citizens will vote on \$15,000 bonds for improvement of water works system.

**Centerville, Tenn.**—City is considering voting on \$30,000 bonds for construction of water works and electric light plant.

**Dallas, Tex.**—Board of Municipal Commissioners has selected William Barclay Parsons and Eugene Klapp, of New York City, as Consulting Engineers for construction of White Rock water plant and dam; plans prepared by J. M. Preston, City Engineer; cost about \$730,000 or \$750,000.

**Orange, Tex.**—Ladies' Civic Club is urging extension of water mains to Anderson Park; fountain will be erected.

**Texarkana, Tex.**—Council has let contract for preliminary survey and estimates of cost of construction of independent water

works system to be owned by the municipality.

**Springville, Utah.**—Surveys have been completed for proposed city water system; cost about \$35,000.

**Willard, Utah.**—City is considering construction of a water works system.

**Big Stone Gap, Va.**—City will issue \$50,000 water works bonds.

**Bellingham, Wash.**—Bids will be asked, after Jan. 1 for constructing proposed water works for Silver Beach; cost \$13,000.—H. W. Troutman, City Engineer.

**Colfax, Wash.**—Council is advising adoption of meter system.

**North Yakima, Wash.**—Superintendent Arrowsmith of the Northwest Light & Water Company has refused offer from city of \$300,000 for company's water system; refusal makes independent municipal system likely.

**Sultan, Wash.**—City Engineer Bunce will prepare plans for installation of water system; \$15,000 is available.

**Tacoma, Wash.**—Council has adopted resolution authorizing and directing the Commissioner of Public Works to have Frank C. Kelsey forthwith examine the report of the City Council upon Green River as a source of water supply for city.

**Grafton, W. Va.**—Complete system of water works is to be installed at Kingwood; company has been organized of prominent citizens for that purpose; it will own and operate the system for ten years, after which the town can buy it if it desires.

**Rowlesburg, W. Va.**—C. C. Pierce is considering installation of water system.

**Wheeling, W. Va.**—Plans have been prepared by J. R. Kommer, Consulting Engineer, for building to be erected at water works.

**Wheeling, W. Va.**—Board of County Commissioners passed in amended form ordinance granting franchise to Warwood Water & Light Company; franchise gives the company right to lay water line through public roads in South Warwood.

**Calgary, Alta., Can.**—Council is considering a \$31,000 appropriation for extension of water mains.

**Coldwater, Ont., Can.**—Ratepayers will ask Council to have by-law submitted at once to the people to decide whether village will install system of fire protection alone, at an approximate cost of \$10,000, or complete water works system at cost of \$29,000.

**Port Arthur, Ont., Can.**—City will lay an intake pipe in connection with the water works system; cost \$30,000.—John Galt, C.E., Toronto, Consulting Engineer.

**Yorktown, Alta., Can.**—Council will issue \$70,000 bonds for water works and sewerage extensions and cement walk construction.

## BIDS RECEIVED AND CONTRACTS AWARDED

**San Francisco, Cal.**—Board of Public Works, Sept. 22, awarded contracts for valves on the high pressure water system for fire protection as follows: To the Pittsburg Valve, Fdy. & Constr. Co., of Pittsburg, Pa., for about 1,580 valves, \$135,000; to the Pump & Water Co., of San Francisco, 900 valves, \$91,576, and the Union Machine Co., of San Francisco, for 320 valves.

**Florence, Colo.**—Fox & Smith Constr. Co. has secured contract for completion of Shearer dam for Beaver Land & Irrigation Co. for \$125,000.

**Batavia, Ill.**—Van Dervolgan & Fisher, St. Charles, secured the contract, at about \$700, for constructing an 8-in. well at the County Farm.

**Topeka, Kan.**—Contract between the Water Commissioners and Kiersted & Riley, Engineers, by which the latter are to do all the work of remodeling the water plant for \$20,000, plus 3 per cent for additional work about that provided for in the original plans covered by the \$400,000 bond issue, has been ratified by Council.

The contract for securing a temporary supply of water from the Kansas City, Mo., water plant was also ratified.

**Red Wing, Minn.**—La Crosse Constr. Co., La Crosse, Wis., has secured contract for constructing concrete reservoir and well house near pumping station for \$10,224.

**Independence, Mo.**—Board of County Commissioners, Kansas City, has let contract to Comboy & Milton, at \$3,695, for construction of reservoir at County Farm.—S. A. Bover, County Clerk.

**Fairfield, Neb.**—T. C. Brooks Sons Co., Jackson, Mich., have secured contract for constructing water works and electric light plant, bids opened Sept. 21.—W. E. Underkoffler, City Clerk; Charles F. Sturtevant, Consulting Engineer, Holdridge.

**New York, N. Y.**—A contract was awarded by the Department of Water Supply, Gas and Electricity for furnishing, delivering and erecting two pumping engines with

foundations, steam and auxiliary piping, suction and discharge piping and all other appurtenances and appliances, complete in the 98th st. pumping station, Borough of Manhattan, to the lowest bidder, Henry R. Worthington, for \$73,900.

**Niagara Falls, N. Y.**—J. Elwood Baird has received the contract to lay the conduits for the cables which will carry the power to the pumping plant.—A. C. Douglass, Mayor.

**Painted Post, N. Y.**—The Village Board has let the contract for laying piping for new municipal water system to B. G. Coon Construction Co., of Wilkes-Barre, Pa., at \$21,000. The company will be bonded for the performance of the contract.

**Bowman, N. D.**—G. Haggart, Fargo, has secured contract for constructing water works for about \$12,000.

**Blackwell, Okla.**—Lund & Cunyan, city, have been awarded contract for water works extensions.—W. R. Peck, Mayor; A. Sparks, City Clerk; Burns & McDonnell, Engineers, Kansas City, Mo.

**McAlester, Okla.**—One bid, that of the Kansas City Bridge Co., was received for the improvement of the dam at the water works, for \$2,276, to use Lackawanna piling, and \$2,230 to use Carnegie piling; awarded contract; the engineer's estimate was \$2,399.50.

**Bradford, Pa.**—Following are bids opened Sept. 20 for the enlargement of No. 2 reservoir: (a) W. W. Constr. Co., Franklin; (b) Peter Pascuzzi, Kane; (c) Rizzuti & Chiodo, Bradford; (d) Kuhn & Applegate, Bradford: 32 acres clearing and grubbing, (a) \$80, (b) \$256, (c) \$162, (d) \$150, 3,000 cu. yd. excav. in trench, (a) 55 cts., (b) 47 cts., (c) 42 cts., (d) \$1.50; 52,030 cu. yd. excav. for embankment, (a) 39 cts., (b) 33 1-3 cts., (c) 42 cts., (d) 43 cts.; stripping, per cu. yd., (a) 32 cts., (b) 41 cts., (c) 35 cts., (d) 50 cts.; 4,734 cu. yd. masonry, coursed stone, (a) \$6.50, (b) \$5.75, (c) \$6.49, (d) \$6.25; 622 cu. yd. plain concrete, (a) \$7, (b) \$6, (c) \$6.49, (d) \$8.50; 98 cu. yd. reinforced concrete, including steel, (a) \$14, (b) \$12.10, (c) \$10.80, (d) \$15; 3,980 sq. yd. rip rap paving, 12 in. thick, (a) 85 cts., (b) 98 cts., (c) \$1.51, (d) \$1.65; 216 lin. ft. 20-in. c. i. pipe, (a) \$3.80, (b) \$4.60, (c) \$3.60, (d) \$4; 4.2 tons 20-in. c. i. specials, (a) \$75, (b) \$92, (c) \$28, (d) \$75; 1 gate house bridge, (a) \$234, (b) \$210, (c) \$187.50, (d) \$225; 1 spillway bridge, (a) \$350, (b) \$347, (c) \$245, (d) \$225; 1 brick gate house, 10 x 8 5/8 x 9, (a) \$260, (b) \$122, (c) \$297.60, (d) \$500.—B. A. Wise, City Engineer.

**Mountain City, Tenn.**—City has awarded contract to R. L. Blevins, Bristol, to construct water works.

**Norfolk, Va.**—James Robertson Manufacturing Co. were awarded contract by the Controllers for furnishing the city Water Department with 11,400 pounds of pipe at \$5.15 per 100 pounds.

**Seattle, Wash.**—Bids were opened Sept. 15 by the Board of Public Works for laying water mains on Spokane and other streets and the contract has been awarded to Badenhansen & Hull, of Seattle, for a total of \$180,611, including valves, hydrants, pipe, etc. They bid for 36-in. lock bar steel pipe 5-16 in., 1,350 ft., \$10; 30-in. c. i. pipe "B," 3,150 lin. ft., \$9.85; 24-in. c. i. pipe "B," 1,550 lin. ft., \$6.95; 20-in. c. i. pipe "B," 8,650 lin. ft., \$5.66; 20-in. crossing west waterway, \$18,000; 16-in. c. i. pipe, 1 in. thick shell, 200 ft., \$5.77; 16-in. c. i. pipe "B," 650 ft., \$4.15; 16-in. c. i. pipe "A," 3,750 ft., \$3.96; 8-in. c. i. pipe "A," 100 ft., \$1.35; 2-in. g. i. pipe, 250 ft., 40 cts.; 8-in. c. i. pipe "B," 24 ft., \$1.50; 8-in. lap weld, g. s. pipe, 150 ft., \$2; 6-in. lap weld g. s. pipe, 50 ft., \$1.10; special castings, 2,000 lb., 8 cts.; extra excavation, 200 cu. yd., 10 cts.; extra excavation (tile drain), 90 cu. yd., 75 cts.; piling, 45,000 lin. ft., 15 cts.; lumber in bridge and towers, 430 m., \$18; lumber in box drain, 3 m., \$22; concrete in piers and anchors, 225 cu. yd., \$10; concrete in footings and fndn., 225 cu. yd., \$10; shackle rods, 10,200 lb., 6 cts.; bolts, 23,000 lb., 6 cts.; c. i. washers, 4,000 lb., 4 cts.; pump house, \$1,200; pump, \$1,800; electric motor, \$1,500; switchboard, \$650; wiring at pump house, \$100; pump connections, 4,000 lb., 7 cts.; 6 tanks, 24 ft. dia., 16 ft. high, \$750; 10-in. sewer pipe, 100 ft., 60 cts.; 6-in., 50 ft., 50 cts.; 4-in., 50 ft., 25 cts.; 4-in. tile drain, 100 ft., 25 cts.; 4-in. tile drain in steel pipe trench, 300 ft., 80 cts. Totals of other bids: International Contract Co., Seattle, \$181,673, and Paul Steerstrup, Seattle, \$194,605.

**Seattle, Wash.**—C. W. Colt & Co. have been awarded contract for constructing water mains in 32d ave. for \$5,216.46.

**Wheeling, W. Va.**—Ohio County Commissioners have awarded contract to J. E. Wright Co. to pave left-hand branch of Caldwell's Run, distance of 350 ft.—A. S. Bell, County Engineer.

**New Westminster, B. C., Can.**—J. C. McDonald, Frank Forks, B. C., Can., has been awarded contract by city to supply steel piling for new municipal reservoir, at \$218,527.



## LIGHTING AND POWER

**Gadsden, Ala.**—Alabama City, Gadsden & Attalla Railway plans to extend lighting system.—G. H. Schuler, President.

**Beaumont, Cal.**—Citizens are considering matter of street lighting.

**Long Beach, Cal.**—City will be authorized to extend illumination along Ocean ave. at least two miles farther and add more lights to pier and American ave.

**Needles, Cal.**—French capitalists, including the Rothschilds, are to become interested in an immense power project, to be built in this county on Colorado River; Count C. E. Apponyi is in Pasadena working on preliminary plans.

**Oakland, Cal.**—Lighting district has been formed; six arc lights and 21 incandescents of 33 c.p. each will be installed.

**Oroville, Cal.**—R. Leo Van Wormer has filed two water locations in Butte County, one from Feather River and another from Mosquito Creek.

**Pleasanton, Cal.**—Spring Valley Company will soon commence work on construction of its power plant.

**Delaware City, Del.**—Council has granted the Delaware Water Improvement Company, New Castle, franchise to erect transmission line for distribution of electricity; city will install electric street lamps.

**Wilmington, Del.**—Construction of an electric light plant in Gordon Heights in connection with water plant is under consideration; Ernest B. McNair is interested.

**Dallas, Ga.**—Paulding County Power Company will soon commence work on construction of proposed dam across Pumpkinville Creek; about 1,000 h.p. will be developed.

**Senola, Ga.**—Citizens have voted \$10,000 bonds for electric light plant.

**Whitestone, Ga.**—Frank Eastman, Chicago, is planning construction of water-power-electric plant to transmit 700 h. p. by electricity to marble works near Whitestone.—H. von Schon, Wayne County Bank Bldg., Chicago, Engineer in charge.

**Murray, Ida.**—Construction of an electric light plant is being considered; A. H. Featherstone and C. F. O. Merriam, Wallace, are interested.

**Indianapolis, Ind.**—Board of Control of State Public Buildings and Grounds has decided to ask local lighting companies for bids to furnish light and power for State House for ensuing two years.

**Iowa Falls, Ia.**—Interstate Power Co. will expend about \$612,500 in construction of a plant.

**Marion, Kan.**—Bids have not as yet been asked for construction of proposed electric light plant.—Thos. W. Brown, City Clerk.

**Nickerson, Kan.**—Election on \$55,000 electric light and water bonds has been postponed.

**Louisville, Ky.**—Underwriters' Realty Co. has accepted plans for proposed power house.

**Alexandria, La.**—Board of Aldermen has sold \$40,000 electric light and water works bonds to Ulen, Sutherland & Co., of Chicago.

**Clinton, La.**—Citizens have voted \$15,000 bonds to purchase and equip electric light plant to be owned by city.

**Crowley, La.**—Council has engaged Warren B. Reed, New Orleans, La., as consulting engineer for installation of temporary electric light plant and to prepare plans and specifications for permanent plant.

**Napoleonville, La.**—City will rebuild electric light and water plant.

**New Iberia, La.**—Board of Electric Lights and Water Works is considering ordering tax for erection of modern light and water plant.

**Loch Raven, Md.**—Maryland School for Boys has decided to construct power plant; address 601 Calvert Bldg., Baltimore.

**Rockville, Md.**—City is considering proposition for installation of electric plant for furnishing lighting and power.

**Amherst, Mass.**—Connecticut River Power Company is making surveys for extension of high-tension transmission line from power house of Amherst Gas Company through South Amherst and Hadley across the river near the Ox Box to Easthampton.

**Chilcopee, Mass.**—Council has passed first reading ordinance appropriating \$16,000 for extension to present electric system.

**Detroit, Mich.**—Detroit United Railway Co. will construct several miles of conduit under paved streets; about \$200,000 will be expended in improvements.—F. W. Brook, General Manager.

**Ada, Minn.**—Council is considering installation of public heating plant.

**Aurora, Minn.**—The Hartley Electric Co., of Virginia, has asked city for a 20-year franchise to operate an electric light plant.

**Bemidji, Minn.**—Council has refused to grant renewal of franchise of Warfield Electric Company which will soon expire.

**Grand Rapids, Minn.**—City will soon ask for bids on 40 4-light lamp posts.

**Madison, Miss.**—Bids will be received about Oct. 10 for installing in city light

plant, boiler 72 in. x 18 ft.—J. C. Bangs, Manager.

**Festus, Mo.**—Citizens will vote on \$15,000 bond issue for electric lights.

**Lee's Summit, Mo.**—Council has received application from M. A. Bogle, Kansas City, for franchise to construct an electric light plant or to purchase plant already established.

**Nebraska City, Neb.**—H. H. Hanks and Walter McNamara have formed a company and will petition Council for electric light franchise.

**Plalstow, N. H.**—Plans are being made to install an electric light plant between this village and Newton to furnish electricity for lighting the streets and residences in both places.

**Hoboken, N. J.**—Citizens' Light, Heat & Power Company has decided to proceed at once with erection of power plant, to begin to make arrangements for laying conduits, stringing wires and erecting poles and posts along the different streets of the city.

**Orange, N. J.**—All bids for the construction of a municipal electric lighting plant as given last week were above estimated cost and will probably be rejected.—Willett B. Gano, City Clerk; Runyon & Carey, Engineers, 122 Market st., Newark.

**South River, N. J.**—Borough contemplates the construction of an electric light plant; cost not to exceed \$12,500; plans, etc., at office of Charles Anderson, Borough Clerk.

**French, N. M.**—Town has granted franchise to French Town Company to erect poles and wires for distribution of electricity.

**Carrollton, N. Y.**—Carrollton Electric Co. has been incorporated to operate a light, heat and power plant; capital \$25,000.—O. Pierson and E. S. Simpson, of Carrollton, Incorporators.

**Poughkeepsie, N. Y.**—Poughkeepsie Light & Power Company has asked permission to issue \$100,000 bonds for extensions and improvements.

**Willard, N. Y.**—Bids will be received Oct. 6 by State Commission in Lunacy for furnishing and installing a direct-connected engine and 75 k.w. direct current dynamo at Willard State Hospital, Willard.—F. B. Ware, Albany, State Architect; T. E. McGarr, Albany, Secretary.

**Greensboro, N. C.**—H. H. Sawyer has been granted 40-year franchise to operate gas plant.

**Cincinnati, O.**—Citizens on Roll's Hill have petitioned Trustees of Millicreek Township for extension of arc lights.

**Clifton, O.**—Cedarville Light & Power Co., Cedarville, has secured a franchise from Village Council.

**Columbus, O.**—Board of Managers of Penitentiary has rejected all bids for new power house, on advice of Attorney General; bids will be readvertised.

**Youngstown, O.**—Lighting Committee of Youngstown Merchants' Association is urging Council to take up proposition of installing new lighting system on Federal st.

**Jennings, Okla.**—Jennings Electric Light & Power and Refrigerator Company has been incorporated by Frank Adams, J. C. Murnhy and C. W. Shoemaker.

**Wilkes-Barre, Pa.**—Councilman Mooney has introduced resolution calling for extension of lighting system installed on Public Square for distance of two blocks on four streets converging on Public Square.

**Anderson, S. C.**—Geo. C. Thompson and Arthur Medwedeff, of Chicago, Ill., have petitioned Council for franchise for gas plant; cost about \$100,000.

**Blacksburg, S. C.**—Citizens have voted \$15,000 bond issue for electric light plant and street improvements.

**Darlington, S. C.**—Darlington Light and Water Co. has been incorporated by P. A. Wilcox and W. M. Haynesworth; capital \$50,000.

**Marion, S. C.**—Marion Water & Electric Co. has been incorporated with \$50,000 capital stock.

**Ramona, S. D.**—Plans are being considered for construction of municipal electric light plant.—J. S. Stevens, Town Clerk.

**Tyndall, S. D.**—City is considering installation of municipal electric light plant; cost about \$12,000; it is proposed to install an alternating-current system and a Fairbanks gas producer.

**Centerville, Tenn.**—City is considering election on \$30,000 bonds for construction of electric light plant and water works.

**Dallas, Tex.**—General Electric Co. has been incorporated by B. E. Sunny, H. L. Monroe and Keames W. Johnson, all of Chicago, Ill., and James F. Strickland; capital \$50,000.

**Hamlin, Tex.**—Hamlin Electric Light & Power Company has been chartered by C. Thompson, G. E. Spurling and Walter E. Morris; capital stock \$15,000.

**Washtucna, Wash.**—Council has accepted proposition of Mr. Glidersleeve to install an electric lighting system; cost nearly \$6,000.

**Port Arthur, Ont., Can.**—Council is considering propositions from James Conmee

to deliver power from Nepigon to this city, and also from the Hydro-Electric Commission.

**Verdun, Que., Can.**—City has retained Charles Brandeis, Consulting Engineer, Montreal, in connection with proposed extensions to the municipal electric light plant.

**Welland, Ont., Can.**—Commissioners of Queen Victoria Niagara Falls Park have granted Ontario Power Company permission to lay another pipe through park; cost about \$1,000,000.

## BIDS RECEIVED AND CONTRACTS AWARDED

**Oakland, Cal.**—After tying a long and stout string on the proposals of the Oakland Gas, Light & Heat Co. for lighting the streets and public buildings of this city, the Council Committee on Public Service returned a recommendation to the Council that the proposals be accepted. This acceptance is only recommended, however, upon the understanding that the company agree to make a reduction of 3 cents per thousand watts hours for lighting of buildings and that an ordinance authorizing the Mayor to enter into such a contract with the company be passed to print. The company must also agree to make a reduction of 25 per cent upon the lighting of public buildings and that a similar contract can be entered into by the Mayor.

**Jewett City, Conn.**—Nashewaug Electric Power Co. has been awarded contract to supply electricity for lamps and motors; service will begin in about six months and a 24-hr. service established.—S. M. Taber, New Bedford, Mass., President.

**Washington, D. C.**—The proposal of the Georgetown Gas Light Co. to continue to furnish and maintain special designation lamps in the District west of Rock Creek and such others as may be erected during the fiscal year 1910 with gas, at the rate of \$12.50 per lamp, per annum, has been accepted by the Commissioners. As the amount of remuneration which the gas light company will receive is less than \$500, no formal contract will be entered into by the Commissioners.

**Elburn, Ill.**—Work has commenced on the construction of the new electric plant; contract has been awarded to International Harvester Co. at about \$5,500; contract includes construction of the plant complete and calls for the erection of 43 street lamps of 80-c.p., and for equipment of sufficient output to supply the street lighting system and 600 incandescent lamps for commercial purposes.

**Bridgewater, Mass.**—Citizens have voted to instruct Committee to enter into a 5-year contract with Bridgewater Electric Co. for lighting the streets of the town; under the new contract the present arc lamps will be replaced with 14 incandescent lamps of 60-c.p., and 172 incandescent lamps of 25-c.p.

**Gouverneur, N. Y.**—Oswegatchie Light & Power Co. has been awarded contract for lighting streets of village for five years at \$45 for all-night arc lamps, a reduction from \$75, the present price, resulting in a saving of \$3,000 during the period on the present number of lamps. The Hannawa Power Co. submitted a bid of \$50 per lamp.

**Syracuse, N. Y.**—Bids were received and contracts awarded for 29 cable boxes for the Bureau of Police and Fire, to Smith & Caffery Co., at \$16 each.

**Syracuse, N. Y.**—Bids were received as follows for heating and ventilating equipment for the new Truant School: Edward Joy Co., \$2,070; E. P. Bates, \$2,198; William George Co., \$2,092; William P. Murphy, \$2,087; W. B. Goldie, \$2,300; C. E. Ames, \$2,147; Lavler & Russell, \$1,845.

**East Youngstown, O.**—Council has voted to accept the contract of the Consolidated Gas & Electric Co. to furnish 15 arc lights of 2,000 candle power each, at the rate of \$70 per light per year; the municipal light plant proposition was not considered; Frank Hernan, sponsor for the municipal lighting plant was present but his bid on furnishing lights was not read.

**Brownsville, Pa.**—John Wolfe, of Homestead, Pa., has been awarded contract for construction of a power house for W. Harry Brown to cost about \$20,000.

**Harrisburg, Pa.**—Bids were opened by Councils for lighting the Mulberry st. bridge, the Market and the Herr st. subways, the filtration plant and pumping station and the fire engine houses, and the bids were referred to a special committee, composed of Messrs. Bacon, Baum and Malley. The bids follow: Harrisburg Light, Heat & Power Co., Mulberry st. bridge, Oct. 10 to July 4, 1910, for Tungsten lights, \$21.22 each; Oct. 10 to June 1, 1912, \$74.97 each, including renewals of lamps and globes; subways, 16-c.p. lamps, Oct. 10 to July 4, 1910, \$12.63; Oct. 10 to June 1, 1912, \$43 for the period; filter plant, pumping station and engine houses, 7 cts. per k.w.

Paxtang Electric Co., Mulberry st. bridge, Oct. 10 to July 4, 1910, for Tungsten lights, \$22.50 each; Oct. 10 to June 1, 1912, \$80 each, including renewals; subways, 16-c.p. lamps, Oct. 10 to July 4, 1910, \$11.52; Oct. 10 to June 1, 1912, \$40.96. This company did not bid for the lighting of the filter plant, pumping station and the engine houses. R. R. Jones submitted bids for furnishing lamps and globes.

Sharon, Pa.—Contract has been awarded to McIntyre & Sons for building power house for the County Court House.

Fort Adams, R. I.—Bids were received Sept. 28 as follows by Capt. Charles C. Metcalf, Constructing Q. M., U. S. A., Newport, for the remodeling of the electric lighting system at Fort Adams: (a) construction of lines, (b) furnishing Watt meters, etc.: Whitall Electric Co., Westerly, R. I., (a) \$11,356, (b) \$3,025, bid on chestnut poles; General Electric Co., 84 State st., Boston, Mass., (a) \$9,977, (b) \$2,673, will not accept No. 1 unless awarded No. 2; Westinghouse Electric & Mfg. Co., Board of Trade Bldg., Boston, (b) \$2,650; McCay Engineering Co., 9 East Lexington st., Baltimore, Md., (a) \$10,825, (b) \$2,854; Fort Wayne Electric Works, Fort Wayne, Ind., (b) \$2,671 (partial bid only on item No. 2); Fred T. Ley Co., Inc., Phoenix Bldg., Springfield, Mass., (a) \$14,250; A. D. Granger Co., 90 West st., New York, (a) \$11,990, (b) \$3,572; M. B. Foster Electric Co., 109 West 26th st., New York, (a) \$11,920, (b) \$3,191; Westinghouse Electric & Mfg. Co., Continental Bldg., Baltimore, Md., (b) \$2,055 (partial bid only on item No. 2). All bids have been forwarded to the Quartermaster General, U. S. A., Washington, D. C., for final action.

Memphis, Tenn.—Southern Steel Co. has awarded contract to the Northern Electric Co. for electrical equipment amounting to \$75,000.

Tacoma, Wash.—Commissioner of Public Works H. J. McGregor opened his bids for supplying city with 750 transformers, one from the Westinghouse Electrical Manufacturing Co. and the other from the General Electric Co.; the bid of the General Electric, \$2,640, will be accepted provided it is found to conform to the specifications; the Westinghouse company bid \$3,090.

## FIRE EQUIPMENT

Annikton, Ala.—Council is considering purchase of automobile truck for the fire department; cost about \$4,000.

East Lake, Ala.—Citizens will vote Oct. 25 on \$8,000 bonds for erection of fire station.

Springdale, Ark.—Fire company has just been organized; will purchase chemical engine.

Beaumont, Cal.—Citizens are considering better fire protection.

Chico, Cal.—Council has passed ordinance that all theatres must be provided with fire buckets, portable extinguishers, axes and fire hooks on every floor.

Pasadena, Cal.—Fire Chief Clifford is favorable to automobile equipment.

Cripple Creek, Colo.—City will purchase hose wagon.

Hartford, Conn.—Council is considering resolution appropriating \$5,000 for purchase of site for truck company house.

Atlanta, Ga.—East Point will organize and equip volunteer fire department.

Augusta, Ga.—Fire Committee has decided to advertise for bids for new fire headquarters; cost about \$18,000.

Quincy, Ill.—City is considering purchase of fire engine.

Warsaw, Ind.—City has decided to purchase new combination chemical wagon for the fire department.

Boston, Mass.—Board of Aldermen has voted to transfer \$4,000 to appropriation for fire house at Forest Hills.

Haverhill, Mass.—Mayor Moulton and Chief Gordon have visited Springfield to look over Flying Squadron.

Holyoke, Mass.—City will build \$80,000 fire station.

Lenox, Mass.—Citizens have voted \$11,000 to build fire station; also to purchase second-class steamer.

Lowell, Mass.—City plans to install two salvage wagons.

Calumet, Mich.—City has advertised for bids for 1,000 ft. of hose.

Monroe, Mich.—Paid fire department will be established.

Ortonville, Minn.—Council has decided to purchase 300 ft. of fire hose.

Sleepy Eye, Minn.—Town has appointed Messrs. Newdall and Steinke committee to purchase chemical engine.

Denver, Mo.—City is considering need of better fire protection.

Elizabeth, N. J.—Council is considering resolution that Fire and Water Committee be authorized to procure five lengths of new hose for Independent Hose Co. No. 4.

Trenton, N. J.—Board of Fire Commissioners has decided to make investigation of fire alarm system of the Bell Telephone Company.

Syracuse, N. Y.—City is considering purchase of auto for Chief Quigley's use, and also automobile hose wagon.

Ryder, N. D.—Citizens have voted \$1,500 bonds for purchase of fire apparatus and equipment.

Girard, O.—Council will purchase considerable additional fire-fighting equipment.

East Greenville, Pa.—Council has appointed committee to secure funds for purchase of hose carriage.

Harrisburg, Pa.—Council has finally passed ordinance for purchase of 2,000 ft. of hose.

Hazleton, Pa.—City is considering proper equipment of all fire companies.

Bismarck, S. D.—Plans have been prepared by Architect Van Horn for \$12,000 fire station.

Norfolk, Va.—Residents of South Norfolk are preparing to ask Board of Supervisors for assistance in securing better fire protection.

Bethel, Vt.—Citizens have voted \$4,000 for improved fire pump.

Tacoma, Wash.—Council has allowed fire department \$5,000 for automobile hose wagon and \$2,500 for automobile for Fire Chief Geo. McAlevy; also \$20,850 to equip Engine Co. No. 11, on South 38th st., and \$12,860 for steamer for Engine Co. No. 8.

Sheboygan, Wis.—City will purchase 75-ft. aerial hook and ladder truck and 1,000 ft. of 2½-in. cotton hose on recommendation of Chief Bedford.

Hamilton, Ont., Can.—Fire Chief Ten Eyck has been instructed to secure prices for auto fire apparatus.

West Toronto, Ont., Can.—Ward Seven is considering need of a fire engine.

## BIDS RECEIVED AND CONTRACTS AWARDED

San Francisco, Cal.—The Fire Commission received bids for supplying fire engine boilers, and although the price was \$18 higher than those of an Eastern manufacturer, the contract was awarded to the Dundon Iron Works, a local concern, at \$893 each.

Belleville, Ill.—City has purchased 500 ft. of Paragon brand of hose at \$1 per ft., through the Stoltz Supply Co., and 500 ft. of Prophet brand at 95 cts per ft., through the Karr Supply Co.—Geo. H. Thebus, Fritz Winter, Jos. L. Herrmann, Committee on Fire and Water.

Lawrence, Mass.—The Knox Automobile Mfg. Co. has been awarded contract to furnish the new auto protective wagon in Warren st.

Missoula, Mont.—Fourteen bids were submitted for furnishing fire hose, the following firms competing: D. T. Curran, Boston Woven Hose & Rubber Co., Eureka Fire Hose & Manufacturing Co., Northwestern Fire Appliance Co., W. S. Knott Co., J. P. Reinhard, Interstate Rubber Co., Washington Rubber Co., Chicago Hose Co., New Jersey Car Spring & Rubber Co., Manhattan Rubber Manufacturing Co., Gutta Percha Rubber Manufacturing Co., Overland Rubber Co., Voorhees Rubber Co.

Akron, O.—The Board of Control has authorized Safety Director Benner to enter into a contract with the Union Auto Garage for the purchase of a new police patrol; the Union Garage's bid of \$2,999.50 was the lowest.

Benner was also authorized to make a contract with the Webb Fire Motor Apparatus Co., of Vincennes, Ind., for a combination hose and chemical wagon. The price is \$3,375. The Webb company was the only bidder.

Bethlehem, Pa.—Fire Committee recommended the purchase of 500 ft. of Blue Diamond hose from the Eureka Hose Co., and 200 ft. of Sphinx hose from the J. S. Krause Hardware Co., all at 80 cts. per ft.; purchase authorized.

Philadelphia, Pa.—There were but two bidders for furnishing and installing fire-alarm boxes and telephone equipment in connection with the high-pressure fire-main service in the northeast section of the city; the bids were opened by Assistant Director Sheehan, in the Department of Public Safety; Walker & Kepler bid \$5,810, and the Gamewell Fire Alarm Telegraph Company, \$8,120.

Norfolk, Va.—Walter J. Simmons & Co., hatters, have been awarded contract for furnishing the Police and Fire Departments with the latest style caps now worn by the New York police and fire fighters.

Benwood, W. Va.—The Board of Control has placed an order with the Hub Furnishing Co. for 43 aluminum hats, to be used in the Fire Department.

Wheeling, W. Va.—The Edgewood Volunteer Fire Co. has placed an order with the Winfield Hook & Ladder Co., of Wisconsin, for a hook and ladder truck, to cost from \$300 to \$500; it will be equipped with a number of small hand chemicals.

## ELECTRIC RAILWAYS

Eureka, Cal.—Preliminary survey for the Humboldt & Eastern R. R. to connect Eureka with Redding or Red Bluff has been started.—Wm. S. Clark is interested.

Los Angeles, Cal.—Construction of double track line connecting Los Angeles, Cal., and San Francisco is being considered.—Capt. John Cross is interested.

Grand Junction, Colo.—Chamber of Commerce, of Clifton, is urging free right of way for construction of an electric interurban line from Grand Junction to Clifton.

Sanford, Fla.—J. B. Taylor & Co., Inc., 30 Church st., New York, are interested in the construction of proposed Florida Central Traction Co., to be built from Sanford, through Orlando, to Kissimmee to handle fruit and garden truck and for the convenience of the winter tourist traffic.

Macon, Ga.—Frederick Kauffman and associates are interested in construction of a 4-mile electric railway connecting with the Macon Ry. & Light Co.'s tracks at East Macon, to extend to Recreation Club.

Mattoon, Ill.—Marshall E. Sampson, Chicago, President of the Mattoon City Railway Company and of the Mattoon-Charleston Interurban Railway Company, has announced that Charleston-Paris electric line will be built next year, actual work of construction beginning next spring.

Fort Wayne, Ind.—Toledo & Fort Wayne Electric Railway Company has been granted a franchise to construct an electric railway along public highways.

Paoli, Ind.—Orange County Board of Commissioners has granted Charles D. Kelso and J. H. Fawcett franchise to construct interurban electric railway over county turnpike from this city to New Albany.

Scottsburg, Ind.—Jefferson County has voted \$67,000 subsidy for Cincinnati, Madison & Western Traction Company; route proposed will go eastward from Scottsburg to Lexington, thence to Hanover and from Hanover to Madison.

Des Moines, Ia.—Des Moines & Sioux City Railway Company has secured more than 100 miles of right of way for its proposed electric railway.—M. H. Miller, General Manager.

Emporia, Kan.—H. W. Sweezy, Manager of Junction City Street Railway, is interested in construction of electric railway in this town.

Duluth, Minn.—Local Street Car Company has decided to build Piedmont ave. extension this fall.

Minneapolis, Minn.—Electric Short Line is considering construction of line to Medicine Lake, and ultimately to Watertown and Rockford.

Gulfport, Miss.—Gulfport & Mississippi Coast Traction Co. will make extensive repairs.—J. A. Jones, General Manager.

Fremont, Neb.—Baker Construction Co. has been organized to build an electric railway from Fremont to Omaha; capital \$100,000.—E. L. Whitcomb, O. C. Phillips, C. W. Baker, Peter Mangold and John G. Huglin, Directors.

East Aurora, N. Y.—Buffalo Southern Ry. Co. will soon begin work on extension to East Aurora.—J. J. Bangert, Buffalo, General Manager.

New York, N. Y.—New York, Westchester & Boston Railway Company has secured all of right of way for branch line to White Plains.

Oswego, N. Y.—Council is considering granting of franchise in West 1st st. to Syracuse, Lake Shore and Northern Railroad Company.

Chesapeake, O.—Town Board has granted franchise to A. E. Cox and associates, Huntington, to build electric railway; railway will extend from Ironton to Gallipolis on the Ohio side of Ohio River and from Point Pleasant to Guyandotte on West Virginia side.

Dayton, O.—Dayton Street Railway Company has increased capital stock to \$300,000; proceeds will be used to construct proposed extension between Athletic Park and Carrmont.—W. L. Smith, General Manager.

Dayton, O.—Plans are being pushed, according to Dr. Samuel George, for completion of Cincinnati, Dayton & Ft. Wayne Railway, and a branch to Chicago will soon begin; company behind the enterprise has a capital of \$2,000,000.

Guthrie, Okla.—Sallisaw, McAlester & Southern Railway Company, with \$100,000 capital and headquarters at McAlester, Kansas City and New York, has been chartered here to build from Sallisaw southwest through Zoya, Haskell, Latimer and Pittsburg Counties to McAlester and thence south to Pittsburg, Atoka, Pushmataha, Choctaw, Bryan and Bryan Counties to Honey Grove, Tex., estimated length of 190 miles, with right to build any branch lines deemed necessary; estimated cost of construction is \$3,000,000.

Guthrie, Okla.—Mid-Continent Traction Co., Tulsa, with \$100,000 capital stock, has taken out charter to build a 200-mile rail-



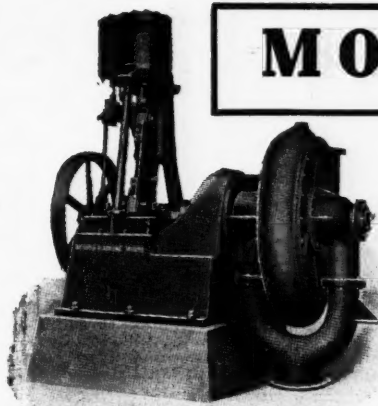
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road, estimated cost \$4,000,000, either steam or electric, between Miami and Shawnee, Okla., passing through the following counties: Craig, Nowata, Rogers, Washington, Tulsa, Creek, Okfuskee, Lincoln and Pottawatomie; charter also includes the right to acquire water rights; main business offices are to be located at Tulsa. Incorporators are: L. J. Weatherwax, of Sapulpa; F. O. Brown, of Red Forks; J. Harnage, Graham Burnham and J. Robert Burnham, all of Tulsa.

**Muskogee, Okla.**—Muskogee Electric Traction Co. is considering construction of number of extensions.

**Oklahoma, Okla.**—Oklahoma County Commissioners have granted Homer S. Hurst, Holdenville; Alfred Hare, Shawnee; W. F. Harn and J. F. Winans franchise to construct electric railway over certain highways.

**Eugene, Ore.**—Northwestern Corporation is arranging to extend many of its lines in this section of the State.—A. Welch, General Manager.

**Milwaukee, Ore.**—Commercial Club is interested in project to have the Portland Railway, Light & Power Co.'s electric line extended to Oregon City; distance 10 miles.

**Bellefonte, Pa.**—Center County Traction Company has applied for charter to construct street railway from this city to State College.—W. C. Hagan, William H. Furey and L. T. Munson are interested.

**Edinboro, Pa.**—Attorney A. O. Chapin has purchased all property and rights of Erie, Cambridge Springs & Corry trolley line; he represented syndicate of capitalists, who will complete the road and put it into use as soon as all arrangements can be made.

**Johnstown, Pa.**—Johnstown Passenger Railway Co. has made proposition to the Cambria Land & Improvement Co. to extend trolley line to that suburb.

**Mars, Pa.**—Contracts will be let about Nov. 1 by the Rochester & Mars St. Ry. Co. for construction of this proposed electric railway, to extend from Mars to Rochester; distance 17 miles.—J. H. Barrett, 331 4th ave., Pittsburg, President and Chief Engineer.

**Waynesburg, Pa.**—Application will be made by Samuel Alken, L. L. Thomas and others for charter of an intended corporation to be called Waynesburg and Blacksville Street Railway Co.

**Wilkes-Barre, Pa.**—Columbia Light, Power & Railway Company, Bloomsburg, has decided to construct electric railway from this city to Sunbury and Shamokin.

**York, Pa.**—Council has passed first reading ordinance granting York Railways Company right to extend lines on Corlies and other avenues and streets.

**Rock Hill, S. C.**—Surveys are being made for the construction of a street car system for this place with an extension to the Catawba River.—J. M. Cherry is interested.

**Humboldt, Tenn.**—The Missouri, Tennessee & Georgia R. R. Co. has applied for charter to construct electric street railway from Humboldt to Dyersburg, via Crockett Mills, Friendship and Bonicord; distance 35 miles; capital stock \$1,000,000.—C. H. Ferrell, Dr. J. H. Thomas, C. T. Jarrell, G. D. Ferrell, C. W. Rooks, J. D. Senter, W. W. Baird, O. C. Sharp, J. M. Senter and A. R. Dodson, Incorporators.

**Beaumont, Tex.**—J. F. Weed, Receiver for the Beaumont Traction Co., has applied for authority to issue \$25,000 of receivers' certificates for double track.

**Clarksville, Tex.**—M. R. & T. Ry. is considering construction of line to this place; principal office, Ashdown, Ark.

**San Angelo, Tex.**—San Angelo Street Railway Co. will construct extension.—Sam. Crowther, President.

**Salt Lake City, Utah.**—Council has passed ordinance granting new franchise to Oregon Short Line; former one was vetoed.

**Seattle, Wash.**—Skagit, Cascade and Chehalis Railway Company has been incorporated by W. W. Shank to build line from Rockford to Spokane; capital \$25,000,000.

**Wheeling, W. Va.**—Dunkard Valley Railroad Company has been incorporated both in West Virginia and Pennsylvania to build electric railways from Waynesburg to Washington, Pa., and from Mannington to Blacksville, W. Va., thence to Waynesburg, Pa.—John L. Johnson, city, is interested.

**Welland, Ont., Can.**—Right of way and franchises are being secured for construction of the proposed trolley line from Port Colborne through Welland and Port Robinson to Niagara Falls.—Fred D. Corey, Buffalo, N. Y., is interested.

#### BIDS RECEIVED AND CONTRACTS AWARDED

**Atlanta, Ga.**—Contract for 2 miles of line from Stonewall to Fairburn, Ga., on the Atlanta & Fairburn Electric R. R., has been let to John Wright & Co.—L. W. Roberts, Engineer.

**Indianapolis, Ind.**—Indianapolis, New Castle & Toledo Electric Ry. Co. has let

first contract for the completion of this electric railway to W. C. Miller.

**Carlisle, Pa.**—Cumberland Ry. Co. has awarded contract for grading to Carlisle Construction Co.

**Seattle, Wash.**—Contract has been awarded to Felt & Eastman, Tacoma, for building the Seattle-Tacoma Short Line, for distance of 29 miles.—James B. Murphy, President.

### BRIDGES

**Los Angeles, Cal.**—Plans have been prepared by Highway Commission for the construction of bridge across Arroyo Seco at Colorado st.

**Napa, Cal.**—City has sold \$15,000 bridge bonds to Bank of Napa for \$15,700.

**Willow, Cal.**—County Supervisors have decided to construct new bridge to span Elk Creek; bids for the work will be asked soon.

**Catlin, Ill.**—Township Highway Commissioners will construct new wagon bridge across Salt Fork River.

**Greenville, Ill.**—Commissioners of Road District No. 3 are considering erection of bridge over Saut Creek.

**Joliet, Ill.**—Elgin, Joliet & Eastern Ry. Co. will soon ask contracts for construction of viaduct at Jackson st.—A. Montzheimer, Chief Engineer.

**Kankakee, Ill.**—County Board of Supervisors are considering construction of bridge over branch of Tower Creek and a bridge over George Brown Ditch.

**Streator, Ill.**—Citizens have defeated proposition to issue \$40,000 bonds for construction of a new bridge over the Vermilion River.

**Decatur, Ind.**—Construction of a bridge over St. Marys River, connecting Adams and Allen Counties, is being considered; cost \$10,500.

**Peru, Ind.**—Bids will be received Oct. 7, noon, by County Commissioners for construction of ten bridges.—Charles Griswold, Auditor Miami County.

**Topeka, Kan.**—City Engineer Rogers has completed plans for proposed extension of Melan st. bridge.

**Lexington, Ky.**—Fayette and Clark Counties will soon award contract for construction of steel bridge across Boone's Creek.

**Perryville, Ky.**—Modern steel bridge will replace old covered bridge at this place.

**New Orleans, La.**—T. L. Willis, Assistant City Engineer, has recommended the construction of bridge across New Basin Canal at Calvez st.

**New Orleans, La.**—City is considering removal and re-erection of bridge over Mobile Canal.—W. J. Hardee, City Engineer.

**Baltimore, Md.**—City Engineer Fendall will ask for appropriation for bridge over Gwynn's Falls.

**Easton, Md.**—Talbot and Caroline Counties are considering rebuilding of Dover bridge over Choptank River.

**Salisbury, Md.**—City and Wicomico County Commissioners have approved plans by Engineer Clark for bridge to be constructed across Humphrey's Mill dam.

**Boston, Mass.**—Mayor Hibbard has recommended transfer of \$13,000 to appropriation for reconstruction of Neponset ave. bridge.

**Boston, Mass.**—State Highway Commission is about to award contract for rebuilding of Parker River bridge.

**St. Joseph, Mich.**—City Engineer Cleary has submitted plans, specifications and profile of proposed Wayne st. viaduct; single span, 176 ft. long and 32 ft. wide, all steel but the flooring.

**Harrisonburg, Mo.**—Cass County will soon let contract for construction of 45-ft. bridge.—F. W. Barker, County Highway Engineer, is preparing plans.

**St. Louis, Mo.**—Board of Public Improvements has approved plans for steel superstructure of the free bridge; cost \$2,000,000.

**Knowlesville, N. Y.**—Residents have asked Canal Board for construction of lift bridge over the canal.

**Syracuse, N. Y.**—City has sold \$17,000 bridge bonds to Ferris and White at \$101.734.

**Bartherton, O.**—Construction of a viaduct over Erie R. R. tracks at Cornell st. is being considered; cost \$65,287.—Francis L. Stuart, 50 Church st., New York, N. Y., Chief Engineer.

**Zanesville, O.**—Board of Commissioners of Muskingum County have not as yet let contract for bridge at Stovetown, in Brush Creek Township.

**McAlester, Okla.**—Council has ordered plans for bridges over Sandy Creek.

**Portland, Ore.**—Waddell and Harrington have been employed to prepare plans for steel bridge across Sullivan's Gulch at E. 12th st.

**Allentown, Pa.**—Commissioners of Lehigh and Northampton Counties have approved plans for the joint county bridge to be constructed at this place; cost \$45,000.

**Butler, Pa.**—Butler County Commission-

ers are considering erection of \$700,000 bridge over Beaver River, near Rock Point.

**Scranton, Pa.**—Officials of American Railways Co., Delaware and Hudson Railroad Co. and Mayor John Von Bergen, Jr., are discussing proposed viaduct from Mifflin ave. and Mulberry st. to Providence road.

**Wilkes-Barre, Pa.**—County Commissioners Smith, Jones and McAvoy have agreed to ask for bids for erection of new bridge over the Susquehanna River; cost about \$200,000.

**Houston, Tex.**—Bids will be received Oct. 11, 10 a. m., for \$500,000 bridge and road bonds.—J. E. Amerman, Judge, Harris County.

**San Antonio, Tex.**—Bexar County Commissioners have selected Terrett Bartlett, of San Antonio, to prepare plans and superintend construction of concrete bridge across Medina River at Pleasanton road.

**Danville, Va.**—Citizens have voted \$100,000 bonds for erecting bridge over Dan River and for street improvements.

**Portsmouth, Va.**—City will open bids Oct. 7 for construction of reinforced concrete culvert at Court st. crossing of Gander Creek.—E. B. Hawks and S. T. Montague, Chairmen Street Committee.

**Hoquiam, Wash.**—Plans and specifications will be received by city for erection of steel bridge at 8th st.

**Puyallup, Wash.**—County Commissioners are considering construction of bridge on Kelly st.

**Trent, Wash.**—County Commissioners have approved plans for steel bridge to be constructed over Spokane River; cost about \$18,000.—Allan R. Scott, County Engineer.

**Vancouver, Wash.**—Viaduct will be constructed from Jefferson st. on 11th ave. over the tracks of the S. P. & S., to depot, if satisfactory details can be arranged by Judiciary Committee and City Attorney.

**Eau Claire, Wis.**—Minneapolis, St. Paul & Sault Ste. Marie Ry. Co. has decided to construct a steel bridge over Eau Claire River; cost about \$25,000.—Thos. Green, Minneapolis, Minn., Chief Engineer.

#### BIDS RECEIVED AND CONTRACTS AWARDED

**Napa, Cal.**—J. B. Newman, city, was awarded contract for building new bridge over 1st st.

**Oakland, Cal.**—Bids for the construction of three bridges in the county were received by the Board of Supervisors, and the contracts were ordered let to Robert Irving to build the bridge over Warm Springs road at \$2,329; to Stephenson & Hoard to build the bridge at Irvington at \$1,142, and to the same construction company for the bridge at Peralto Creek for \$2,222.

**San Bernardino, Cal.**—Contract for six steel and concrete bridges to be constructed in the west end of the county was awarded by the Board of Supervisors to the Urban Cement Co., city, E. H. Kellogg, Manager; the contract price is \$3,025, with extra concrete at \$4 per yd. and extra excavation at 10 cts. per yd. The unsuccessful bids were as follows: Johnson-Shay Co., of Riverside, \$4,939.19; extra concrete, \$10; extra excavation, 50 cts.; R. H. Swinney, city, \$3,225.60; extra concrete, \$7.50; extra excavation, 45 cts.; James McNair, Paving Co., city, \$3,124; extra concrete, \$7. Will Cline, of Upland, \$3,300; extra concrete, \$6.50; extra excavation, 25 cts. Union Iron Works, of Los Angeles, \$3,788. J. D. Kirkpatrick, of Ontario, \$3,324.

Four bridges consist of one 20-ft. span of 9-in. "I" beams, one 24-ft. span of 10-in. "I" beams, and one of one 32-ft. span of 15-in. "I" beams, all resting upon two rubble concrete abutments; roadways 18 ft. in the clear.

**San Francisco, Cal.**—A contract was awarded to Hyde, Harjes & Co., for building a fender at the 4th st. bridge for \$2,899; a contract for a fender at the 6th st. bridge was given to the Thompson Bridge Co., which offered to do the work for \$2,057.

**Chicago, Ill.**—Charles Volkman & Co., 184 Dearborn st., have been awarded the contract for erecting bridges over the north shore channel of the Sanitary District of Chicago, at Lincoln and Isabella sts., in Evanston, Ill., by the Sanitary District of Chicago at \$6,274.

**Garnett, Kan.**—Topeka Bridge Co., Topeka, has been awarded contract, at \$10,000, for construction of three concrete and one steel bridge in this county.

**Grimes Mill, Ky.**—The Commissioners of the Fayette County Fiscal Court received bids for the erection of masonry for the proposed joint bridge, and contract was let to Pat Collins, Georgetown, Ky., at \$3 per cu. yd.; the bids for the steel structure were too high. D. C. Haggard represented Clark County and Road Supervisor L. P. Spurr Fayette County Court.

**Boston, Mass.**—The State Highway Commission opened bids Sept. 28 for rebuilding



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the bridge over Porker River at Oldtown but did not award the contract. The work consists of removing the present wooden bridge; raising the present piers up to a level approximately that of the present abutments by topping out the bridge seats and side retaining walls with concrete; furnishing, delivering and erecting a new bridge consisting of eight spans composed of steel pony trusses, steel floor beams and bracing, and wooden stringers and floor plank; furnishing and erecting a railing on each side of the bridge and approaches; filling the piers up to the new grade of the roadway, finishing with a proper surfacing, and making such repairs to the present masonry and foundations as may be directed. The bids received were as follows: Charles F. Hall, Boston, who bid \$10,340 for the steel superstructure, submitted no bids for the other portions of the work, and his bid was thrown out as informal; United Construction Co., Albany, for superstructure \$11,153, for concrete work \$2,350, for borrow \$698, for fence \$360; total \$14,561; New England Construction Co., Worcester, for superstructure \$9,237.90, for concrete work \$1,987.75, for borrow \$1,206.50, for fence \$738; total \$13,168.15. H. P. Converse Co., Boston, for superstructure \$11,400, for concrete work \$2,820, for borrow \$1,016, for fence \$480; total \$15,716. William H. Ellis, Boston, for superstructure \$13,857, for concrete work \$2,115, for borrow \$793.75, for fence \$1,920; total \$18,645.

**Salem, Mass.**—The Essex County Commissioners opened bids for building a new wooden fender pier at Groveland bridge as follows: Hatch Bros., of Newburyport, \$9,350; W. H. Ellis, of Boston, \$9,876; Holbrook, Cabot & Rollins, of Boston, \$10,800; it was voted to award the contract to Hatch Bros.; the fender pier will be 234 ft. long and will have an ice breaker at the upper end.

**Springfield, Mass.**—Contract was awarded to the Walsh Boiler & Iron Works for repairing and reinforcing the North End bridge by the Supervisors at cost plus 10 per cent, and it is estimated by the Supervisors that the cost will be about \$2,000. Other bidders were the Homer F. Elwell Iron Works, cost and 15 per cent; the R. F. Hawkins Iron Works, cost and 15 per cent; United Construction Co., Albany, N. Y., cost and 9 per cent. Although the bid of the United Construction Co. of Albany is 1 per cent lower than that of the Walsh Boiler & Iron Works it is estimated that the cost to the city will be about \$20 less if the local firm does the work because of expenses in transportation and minor items.

**Stuebenville, O.**—For Bridge No. 22, Warren Township, Talbott & Weatherston were awarded a contract for the substructure on a bid of \$1,842.50; for the iron superstructure the Central Concrete & Construction Co., of Canton, were awarded the contract on a bid of \$2,068.30.

**St. Mary, Ohio.**—Central States Bridge Co., Indianapolis, Ind., has been awarded contract, at \$8,300, for constructing bridge over race and canal to connect North and South Chestnut sts.

**Douglassville, Pa.**—Willauer & Co., of Pottstown, have been given contract to rebuild one of the piers of the Douglassville bridge over the Schuylkill River, which will also be provided with an ice breaker.

**Washington, Pa.**—Town Council has ac-

cepted the bid of C. A. Sims, of Philadelphia, at \$11,996.70, for the grading and masonry and the bid of the Toledo-Massillon Bridge Co., at \$12,040, for the superstructure of the crossing at Dunn ave., over the B. & O. Shortline Ry. Co., or Wheeling, Pittsburgh & Baltimore Ry. Co.

**San Marcos, Tex.**—Commissioners of Hays County have awarded contract for erecting a steel and concrete bridge, 16 ft. wide, 425 ft. long, over the Blanco River, on Kyle Road, to Ottumwa Bridge Co., of Ottumwa, Ia., for \$7,490.

**Wheeling, W. Va.**—The County Commissioners have awarded Dixon & Pickett contract for the new concrete bridges to be erected at Patter run; the work will cost about \$2,000.

## MISCELLANEOUS

**Gadsden, Ala.**—County has defeated proposition to issue \$20,000 bonds for constructing jail.

**Oakland, Cal.**—Board of Works has appointed Otto van Geldern, former City Engineer M. K. Miller and Colonel W. H. Heuer Board of Consulting Engineers to pass on arrangements for proposed harbor improvements with particular reference to the construction in the estuary; City Engineer Turner's plans call for pier construction.

**San Francisco, Cal.**—Plans have been prepared by Engineer Barger for construction of Pier 54.

**Vallejo, Cal.**—County Supervisors have decided to erect \$40,000 jail in this city.

**Washington, D. C.**—Report has been received from American consular officer inclosing report, in which it is stated that local government has invited tenders until Oct. 14 for construction of port, and bids for certain irrigation works must be submitted within the same time; name of the official who should be addressed is given in the report.—Address No. 3917, Bureau of Manufactures.

**Chicago, Ill.**—Fine Arts Society of Oak Park has fund available for system of public playgrounds and parks.

**Rensselaer, Ind.**—County Commissioners are considering lowering and straightening of Kankakee River; cost \$270,000.

**Vincennes, Ind.**—Board of Works has recommended \$1,200 appropriation for erection in Harrison Park of new band stand and tool house combined.

**Council Bluffs, Ia.**—Plans will soon be prepared by M. J. Morris, New York City, for diversion of Indian Creek.

**Pittsburg, Kan.**—Citizens will vote Oct. 26 on \$40,000 improvement bonds.

**Cynthiana, Ky.**—Council is planning to have houses numbered and street signs posted ready for the delivery of mail Dec. 1.

**Louisville, Ky.**—Board of Park Commissioners has planned to beautify all the city parks within next year.

**Boston, Mass.**—Mayor Hibbard has asked City Government for \$30,000 loan for new boat for infirmary department; also \$10,000 for an addition for library purposes to Curtis Hall, Jamaica Plain.

**Brookhaven, Mass.**—City is considering erection of city hall.

**Gloucester, Mass.**—Residents of Magnolia have petitioned for erection of police station and establishment of police protection.

**Lawrence, Mass.**—Board of Aldermen has appropriated \$10,000 for cleaning Spicket River.

**Lowell, Mass.**—City has sold \$50,000 municipal bonds to Blodgett, Merritt & Co. at 102.107.

**Pittsfield, Mass.**—Garbage Disposal Committee has voted to let contract for a year instead of five, as has been the custom in this city, and that a special committee of two be sent to Cambridge to see Maloney incinerator which that city is using.

**Kansas City, Mo.**—Park Commissioners have issued \$45,000 bonds; proceeds will be used to purchase land for public parks.

**Asbury Park, N. J.**—Beach Commissioners will erect pavilion north of the Arcade.

**Atlantic City, N. J.**—Council has introduced ordinance providing for issue of \$5,000 bonds for purpose of improving grounds around Municipal Hospital.

**Camden, N. J.**—Board of Health has appointed Dr. Marcus K. Mines, Dr. H. H. Davis and Reuben H. Gaskill Special Committee to look after plans for a \$100,000 Municipal Hospital building.

**Montclair, N. J.**—Olmstead Brothers, Landscape Engineers, who had been asked to estimate cost of improving Edgemont Park, have sent letter stating that no accurate figures could be given without definite plans; cost, however, will probably be between \$10,000 and \$12,000.

**Cincinnati, O.**—City will improve two streets around city hospital; cost about \$40,000.

**Kittanning, Pa.**—Citizens will vote on \$12,000 bonds for purchase of ground and erection of garbage furnace.

**Fort Worth, Tex.**—City has purchased land and will establish fine large parks and a zoo.

**Seattle, Wash.**—Tract of ten and one-half acres adjoining Walla Walla School and bounded by East Cherry and East Jefferson sts., is to be acquired for playground purposes by condemnation.

## BIDS RECEIVED AND CONTRACTS AWARDED

**San Francisco, Cal.**—The contract with Flinn & Treacy for paving the bulkhead wharf of section 7 of the seawall was signed and their bond accepted.

**Chicago, Ill.**—Bids for reconstruction of Washington st. tunnel, Sec. 2, between Canal and Franklin sts., have been opened by the Chicago Rys. Co., and the following are bids received: (a) for an entire new tunnel, (b) for a tunnel utilizing the roof as constructed, (c) independent plan using compressed air in tunneling; FitzSimmons & Connell, (a) \$746,975; Geo. W. Jackson, Inc., 169 West Jackson Boule., (a) \$809,390, (b) \$741,170, (c) \$590,000 awarded contract; M. H. McGovern Co., (a) \$908,397, (b) \$896,008; Gindele Bros., (b) \$475,000; Empire Constr. Co., (b) \$500,510.

**Youngstown, Ohio.**—The Court House Building Commission has awarded contract to finish the county jail prison tiers to the Champion Iron Works Co., of Kenton, for \$13,000; this company has the contract for the erection of all cell work.

**Norfolk, Va.**—Contract for winter uniforms of police officers has been awarded to the Hub Clothing Co. by the Board of Control; the Hub will furnish the coats at \$19.20 each; trousers at \$6.10; vests at \$2.50.

## TOO LATE FOR CLASSIFICATION

### STREET IMPROVEMENTS

**Birmingham, Ala.**—The Commissioners of Jefferson County are considering issuing \$1,000,000 bonds for roads.

**Gunnison, Col.**—State Engineer Charles W. Comstock, Denver, will receive bids, October 16, noon, for construction and repair of wagon road from Irwin down Anthracite Creek.

**Pine Bluff, Ark.**—Bids will be received by Board of Improvement of Paving District No. 26, Oct. 16, noon, for constructing 32,000 sq. yds. vit. brick bitulthic or creowood block pavement, and setting curbing.—C. H. Triplett, Chairman; E. A. Sheppard, Secretary.

**Chicago Heights, Ill.**—Council has instructed the City Engineer to prepare an estimate of cost for constructing cement sidewalks in sundry streets.

**Nokomis, Ill.**—Bids will be received by Board of Local Improvements, October 11, 1 p. m., for constructing approximately 30,700 sq. yds. of brick block pavement, on 5-in. concrete, and 17,700 lin. ft. of artificial stone combined curb and gutter, on a 6-in. gravel base.—John H. Weinstein, President.

**Peoria, Ill.**—Three brick paving improvements have been ordered amounting to \$35,389, \$11,678 and \$8,609.

**Waukegan, Ill.**—The Board of Local Im-

provements contemplates paving Clayton st., with new granitoid pavement.—H. Thacker, City Clerk.

**Kansas City, Kan.**—The Commissioners of Wyandotte County are having plans prepared for eight miles of rock road, from Muncie to Bonner Springs, Kan.; cost, \$40,000.—J. M. Lindsay, Engineer.

**Raymond, Minn.**—Bids will be received, October 11, for the construction of 560 ft. of 5-ft. cement sidewalks and five crossings.—Al Abrahamson, Village Recorder.

**Benton Harbor, Mich.**—Council has authorized the City Engineer to prepare estimates of cost of paving with macadam S. Pipestone ave. from Niles to Empire ave.

**Detroit, Mich.**—Council has directed the Department of Public Works to advertise for proposals for paving Shipperd ave., 18 ft. wide, with sheet asphalt, on concrete foundation, with Medina, Berea or other approved curbing; estimated cost, \$1,343.—J. J. Haarer, Commissioner.

**Kansas City, Mo.**—The bid of \$1.98 a sq. yd. for paving with brick of Liberty st., between 16th and 19th sts., was rejected by the Board of Public Works. The Board ordered the work readvertised and if more bids are not received it is doubtful if the street ever will be improved; the bid of \$1.98, according to members of the Board, is about 25 per cent higher than usually is paid for brick paving.

**Trenton, N. J.**—State Road Commissioner Gilkyson has approved surveys for 18 miles of new road from Beasley's Point to Cape May Court House, Cape May County.

**Corning, N. Y.**—The road between Corning and Caton is being surveyed.

**Athens, O.**—Bids will be received by the Village Council, October 11, noon, for grading, draining, curbing and paving Sunnyside driveway, from Elm st. to Shannon ave.—W. B. Golden, Village Clerk.

**Cleveland, O.**—Property owners on Superior road, between Lee and Mayfield roads, have petitioned the County Commissioners for an improvement of the thoroughfare.—W. J. Springborn, President Board of Public Service.

**Columbus, O.**—There are about a dozen roads to be improved by the State Highway Commissioners this year not yet let.

**Cincinnati, O.**—County has received petition for improvement of Cleves and Uniontown road; cost \$31,501.50.

**Dayton, O.**—Council will sell \$8,500 bonds for city's share of paving Helena and Lehman sts.

**East Liverpool, O.**—A petition is being circulated for the repaving of Diamond st.

**Lakewood, O.**—Bids will be received Oct. 11, 11 a. m., for furnishing labor and material necessary for Neman ave. paving. B. M. Cook, Village Clerk.





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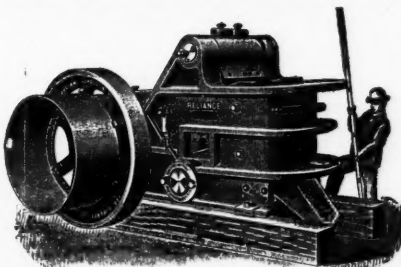
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**Oakley, O.**—Bids will be received October 12, noon, for construction of a 5-ft. cement sidewalk on Madison rd.—Oscar Kosche, Village Clerk.

**St. Clairsville, O.**—Bonds to the amount of \$7,500 for paving have been sold.

**Youngstown, O.**—Council has passed ordinance for paving of Wallace st., between High and Mercer sts.—M. F. Hyland, City Clerk.

**Connellsville, Pa.**—A petition is being circulated for paving Eighth st., north of Harrisburg, Pa.—Contracts for rebuilding two additional sections of the National pike in Fayette County will shortly be let by State Highway Commissioner Joseph W. Hunter.

**Beaumont, Tex.**—Citizens have voted \$10,000 street paving bonds.

**Danville, Va.**—Citizens have voted \$100,000 bonds for street improvement.

**Seattle, Wash.**—Bids will be received by the State Highway Board, October 12, 2 p. m., for grading, draining and macadamizing State aid road No. 56, in King County.—Henry L. Bowly, Secretary, Olympia.

**Wheeling, W. Va.**—Bids will be received Oct. 14, 2 p. m., for macadamizing 600 yds. of National road. H. Bell, County Engineer.

**Beloit, Wis.**—Citizens are urging improvement of river road.

**Watertown, Wis.**—Bids will be received by the Board of Public Works, October 11, 2 p. m., for repairing 10th and Wilder sts., from Clyman to Clark st., and Clark st., from Wilder to Breckenridge st.—Frank S. Weber, Chairman.

## SEWERAGE

**Elgin, Ill.**—Council has passed ordinance for constructing a sewer system in Locust st., from State to Jewett sts.—Carl E. Plum, City Engineer.

**Joliet, Ill.**—Bids will be received by Board of Local Improvements, October 11, 10 a. m., for the construction of a sewer in Illinois st.—William S. Welch, Clerk.

**Hamburg, Ia.**—Engineers J. S. Worley & Co., Reliance Bldg., Kansas City, Mo., have prepared plans for a system of vitrified pipe sewers; cost, \$30,000.

**Leon, Ia.**—Engineer Chas. P. Chase has been engaged to make plans for constructing sewers for Leon.

**Baltimore, Md.**—The Sewerage Commission will ask for \$1,190,000 to be taken out of the sewerage loan of 1910.—Calvin W. Hendrick, Chief Engineer.

**Detroit, Mich.**—City Engineer R. H. McCormick has prepared plans for a brick public sewer to be constructed in the eastern part of the city, at an estimated cost of \$100,000.—J. J. Haarer, Commissioner of Public Works.

**South River, N. J.**—Borough contemplates constructing a system of sewers and a disposal works; cost not to exceed \$52,000.—Charles Anderson, Borough Clerk.

**Phoenix, N. Y.**—A sewer will be laid from Bridge st. to Brandy brook.

**Rochester, N. Y.**—Bids will be received 2 p. m., Oct. 9, by Engineer W. R. Story, 510 Ellwanger & Barry Bldg., for construction of a vitrified pipe sewer in Kossuth st. in the town of Gates.

**Carthage, O.**—The citizens have voted \$32,500 bonds for sewer purposes.—L. Hall, Village Clerk.

**Cleveland, O.**—Residents in vicinity of Dugway Brook are urging sewer improvements; cost about \$8,000.

**Cleveland Heights, O.**—Bids will be received by William G. Phare, Village Clerk, for furnishing labor and material necessary for improvement of Warrensville Center road by constructing sanitary sewers.

**Dayton, O.**—Council is considering issuing of \$4,200 bonds for sewers.

**Lorain, O.**—The Board of Health has requested the City Council to construct a sewer on Orchard st.

**Warren, O.**—Consulting Engineer Alexander Potter, 116 Liberty st., New York City, is preparing plans for a sewerage system and sewage disposal plant for Warren.—B. C. Smith, City Engineer.

**Wellsville, O.**—Bids will be received by Board of Public Service, October 9, noon, for furnishing material for constructing 8-in. sanitary sewer with all the necessary manholes, flush tanks, Y branches, etc., on Arthur st. and Vulcan alley. William G. O'Grady, Secretary.

**Salem, S. D.**—Bids will be received Oct. 18, for the construction of a main sewer.—N. M. Nelson, City Auditor.

**Beaumont, Tex.**—Citizens have voted \$60,000 sewer bonds.

**Portage, Wis.**—The citizens have voted \$50,000 bonds for construction of sewerage system.

## BIDS RECEIVED

**Brookline, Mass.**—The following proposals were opened for a sewer in Heath st., Lowell Playground and Boylston st.: Bruno & Pettitt, \$9,982; M. J. O'Hearn,

\$8,966; Coughlan & Shells, \$8,662; James Driscoll & Son, awarded contract, \$8,566.

The following proposals were opened for a sewer in Freeman and Stetson sts.: Coughlan & Shells Co., \$952.50; M. J. O'Hearn, \$628.50; James Driscoll & Son, awarded contract, \$573.50.

**Devils Lake, N. D.**—Bids were opened by Council, Sept. 30, for construction of the new trunk line sewer to run through the north and west of the city; Engineer Rath's estimate of the cost of the work was a little over \$30,000, but L. C. Schrueth of Fargo took the contract on the lowest bid of \$27,000; Tom Young, city, was next, with a bid of \$29,000, while Gilbert Haggart of Fargo came third with a bid of \$31,000.

## WATER SUPPLY

**Cortez, Col.**—Bids will be received Oct. 23, noon, for sinking artesian well at or near Cortez.—Chas. W. Comstock, State Engineer, Denver.

**Chicago Heights, Ill.**—Council has instructed the City Engineer to prepare estimates for laying a 4-in. water main in alley east of Wallace st., from 16th to 14th sts.

**Summit, Ill.**—Bids will be received by the Board of Trustees Oct. 11, 8 p. m., for constructing a concrete reservoir and pumping station, including air compressor, air lift, triplex power pump, electric motors and appurtenances.—W. B. Ewing, C. E., 1003 Chamber of Commerce, Chicago.

**Leon, Ia.**—Chas. P. Chase, of the Iowa Engineering Co., Clinton, Ia., has been engaged to make plans for a system of water works, sewers and street grades for Leon; estimated cost \$80,000.

**Ashland, Kan.**—Engineers J. S. Worley & Co., Reliance Bldg., Kansas City, Mo., have prepared plans and specifications for a system of water works and electric lights for Ashland, for which \$80,000 of bonds have been voted.

**Lucas, Kan.**—Engineers J. S. Worley & Co., Reliance Bldg., Kansas City, Mo., have prepared plans and specifications for a system of water works and electric lights; cost \$30,000; bonds voted and for sale.

**St. John, Kan.**—Bids will be received Oct. 12 for water works material and construction line material and constructing an electric light line.—A. O. Seavers, City Clerk; Burns & McDonnell, Engineers, Scarritt Bldg., Kansas City, Mo.

**Howell, Mich.**—Bids will be received by the Trustees of the Michigan State Sanatorium for Tuberculosis until Oct. 15, noon, for the construction of a water supply system.—F. R. Gray, M.D., W. B. Hinsdale, M.D., Committee.

**Barker, N. Y.**—Engineers Knight & Hopkins, Rome, have been engaged to prepare plans for a system of water works; water will be taken from Lake Ontario.

**Carthage, N. Y.**—Deer River Power Co. will construct large reservoir for storage purposes.

**Collinwood, O.**—An election will be held Nov. 2 to vote on issuing \$15,000 bonds for water works improvement.

**Waverly, O.**—Citizens have voted \$35,000 bonds for installation of municipal water works system.

**Warren, O.**—An election will be held Oct. 9 to vote on issuing \$250,000 bonds for construction of municipal water and light plant.

**Ft. Gibson, Okla.**—Bids will be received until Oct. 12, 8 p. m., for the complete construction of a system of water works.—M. A. Earl & Co., Engineers, Muskogee.

**Cresson, Pa.**—The Cresson Water Co. has increased its capital from \$10,000 to \$100,000.

**New Kensington, Pa.**—The New Kensington Water Co. proposes to establish a mechanical filtration plant at a cost of \$75,000 to supply Arnold and Parnassus with filtered water.

**Rapid City, S. D.**—Bids will be received by R. G. Valentine, Commissioner of Indian Affairs, Department of the Interior, Washington, D. C., until Oct. 28, 2 p. m., for the complete construction of a gravity water system at the Rapid City Indian School, South Dakota.—Jesse F. House, Superintendent.

**Port Arthur, Tex.**—Water Co. has been ordered to extend fire main from place where it now terminates at Savannah ave. to city limits, with six additional fire plugs.

**Wheeling, W. Va.**—Board of Control has asked local U. S. engineers to recommend site for proposed filtration plant.

**Wheeling, W. Va.**—The Board of Control will soon ask for bids for a new pump house at the water works, according to plans of J. Richard Kommer, Milwaukee, Wis.

**Waukesha, Wis.**—The Board of Public Works has ordered water mains laid in two streets.—John P. Dey, Chairman.

## LIGHTING AND POWER

**Augusta, Ga.**—Georgia-Carolina Power Co., capitalized at \$500,000, plans to develop 8,000 h.p. by dam 25 ft. high across the Savannah River.

**Ashland, Kan.**—Engineers J. S. Worley & Co., Kansas City, Mo., have prepared plans and specifications for an electric light plant.

**Lucas, Kan.**—Engineers J. S. Worley & Co., Reliance Bldg., Kansas City, Mo., have prepared plans and specifications for an electric light plant.

**St. John, Kan.**—Bids will be received Oct. 12 for construction of electric light line.

**Port Huron, Mich.**—John W. Thomson has asked Council for a franchise to furnish gas.

Council has authorized City Clerk to advertise for bids for lighting streets with electricity, the bids to be for not less than 175 arc lights, both on the Philadelphia moonlight schedule and all night.

**Laconia, N. H.**—Committee on Street Lighting is considering proposed change of street lighting.

**Ft. Lincoln, N. D.**—Bids will be received by J. D. Elliott, Construction Quartermaster, Oct. 19, 1:30 p. m., for wiring buildings; also for furnishing all poles and setting up and wiring same around garrison and down to end of reservation road.

**Dayton, O.**—Committee of the Whole is considering ordinance calling for improvement of streets in central part of city by installation of boulevard system of lighting; total cost \$32,000.

**Warren, O.**—An election will be held Oct. 9, to vote on issuing bonds for construction of a municipal light plant.

**York, Pa.**—Plans are being considered by city officials for installation and operation of a municipal electric power plant; it is proposed to remodel the crematory plant along Northern Central railway for purpose; bids for necessary alterations to be made have been asked and the improvements may be made within the next year; there are 423 street lights in this city which are costing the taxpayers about \$22,000 per annum; present lighting contract expires the first Monday of next April, and is held by the Edison Electric Light Co.; bids have been advertised for lighting of city after the present fiscal year of city government; they will be opened Oct. 15, noon, by the Light Committee, O. O. Ettline, Chairman.

## FIRE EQUIPMENT

**Little Rock, Ark.**—Chief Hafer recommends that motor be substituted for horse-drawn apparatus.

**Los Angeles, Cal.**—City needs a combination chemical and hose wagon for the protection of the San Pedro district; Chief Lips also asks for two combination chemical and hose wagons, a city service combination chemical and truck, a fourth-size engine and 12,000 ft. of 2½-in. hose.

**Normal, Ill.**—City may install a fire alarm system.

**Cortland, N. Y.**—Citizens will vote on \$37,500 appropriation for site and erection of new fire building.

**Portland, Ore.**—Montavilla asks the city for 1,000 ft. of hose and a hose cart.

## ELECTRIC RAILWAYS

**Warren, O.**—Local street car company has decided to take up matter of belt car line around city.

**Beaver Falls, Pa.**—Application will be made by Stewart S. Neff, Gerald Holman, Hiram G. Miller, Robert W. Cunningham, John E. Norris, Leonard M. Uber and Joseph V. Cunningham for charter of intended corporation to be called New Castle & Beaver Valley Street Railway Co.

**Bloomburg, Pa.**—E. R. Sponsler, Harrisburg, president of Columbia Power, Light & Railways Co., a \$1,500,000 corporation, which recently absorbed the Columbia & Montour and Danville & Bloomburg Electric Railways and the six electric and gas lighting plants at Columbia and Montour counties, has announced that in the near future work would be started to extend lines of Columbia & Montour from Berwick to Wilkes-Barre, 32 miles, and Danville & Bloomburg from Danville to Sunbury, 14 miles, with possibility of making further extensions to Shamokin and then through-out West Branch.

## BRIDGES

**Ottawa, Kan.**—Plans and specifications have been prepared for construction of six new bridges.—Address Clerk Baldwin of Franklin County.

**Port Huron, Mich.**—Council will readvertise for bids for placing culverts in Indian Creek.

**Barberton, O.**—Council has approved plans and specifications for the Cornell st. viaduct; total cost of the viaduct and lowering tracks is about \$65,000.—Address Mayor McNamara.

**Cleveland, O.**—Bids will be received Oct. 27, 11 a. m., for the construction of a concrete culvert on Center Ridge road, Rocky River Township.—A. B. Lea, County Surveyor; Wm. F. Black, Clerk Board of Commissioners.



# The New FLASH-LIGHT System

CITY OF NIAGARA FALLS

MAYOR'S OFFICE

ANTHONY C. DOUGLASS, MAYOR  
HENRY D. NEFF, SECRETARY

Sept. 18th, 1909.

The Dean Electric Co.,  
Elyria, Ohio.

Dear Sirs:-

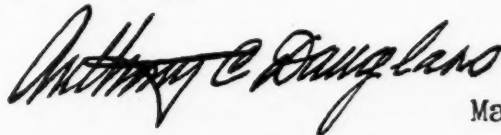
The Flashlight Patrol system has been in operation here now for several months. It has been a success right from the start and is a vast improvement on old methods of police signal systems.

We cannot speak too enthusiastically of the results showing from the operation of this apparatus.

We have had the system in operation in this City for 12 or 15 years.

Personally, I do not think a Police Department in the Country will be without the Flashlight Patrol System, when the merits of the apparatus are apparent to them.

Yours truly,



Mayor.

## FLASH-LIGHT

The Patrol FLASH-LIGHT System Enables headquarters to reach each patrolman INSTANTLY. Think of the wonderful advantage of being able to advise the nearest officer of any attempted crime.

Simply throwing a little key lights powerful red lamps on any beat—or all over the city. This signals the roundsmen to come to the telephone for instructions.

## FIRE ALARMS

An unusually efficient fire alarm system may be used through the same boxes. No duplicate systems are necessary.

## REGISTRATION

Reports from roundsmen are automatically registered on a ticker tape at headquarters. An instantaneous Wagon-Call is also provided.

## TELEPHONES

Have you any police or fire telephone system in use? how big is your city? Why have separate police, fire and telephone apparatus? All desirable signalling features are combined in the

Patrol FLASH-LIGHT System.

Write for three-color booklet. Do it NOW.

**The DEAN ELECTRIC Co.,** SAN FRANCISCO, KANSAS CITY **Elyria, Ohio, U. S. A.**

**Hamilton, O.**—City Engineer L. A. Dillon is preparing preliminary plans for a reinforced concrete viaduct 250 ft. long, with four arches, at G st.—Charles Robertson, Clerk Board of Public Works.

**Meadville, Pa.**—Mayor and Chairman of two Councilmanic bodies will represent city in conference with County Commissioners relative to new joint bridge over French Creek on Mead ave.

**Wilkes-Barre, Pa.**—County has decided to erect bridge in Hanover Township connecting towns of Plymouth and Breslau.

**Watertown, Wis.**—Bids will be received by Board of Public Works Oct. 11, 2 p. m., for replanking Smith's bridge, including the replacement of defective joists and stringers and other repairs found necessary.—Frank S. Weber, Chairman.

### MISCELLANEOUS

**Oakland, Cal.**—Board of Public Works is considering plans for public museum.

**Haverhill, Mass.**—City will purchase 100 enamel street signs.

**Haverhill, Mass.**—Council is considering order for bids for purchasing 6 auto vehicles at cost of \$20,000.

**Port Huron, Mich.**—Council will advertise for bids for an addition to the bath house at Lakeside Park.

**Buffalo, N. Y.**—City will construct market building.—Howard L. Beck, City Architect; Francis G. Ward, Commissioner of Public Works; Alderman Geo. J. Hoffa, Chairman Market Committee.

**Toledo, O.**—Council Committee on Finance has approved issue of \$60,000 bonds for park and boulevard purposes.

**Johnstown, Pa.**—Proposals will be received Oct. 11 for the collection and disposal of garbage for the term of five years from Jan. 1, 1910.

**Norfolk, Va.**—Board of Control is considering erection of three lavatories; cost \$3,000 each. B. F. Mitchell, architect.

### CONTRACT AWARDED

**Taunton, Mass.**—The contract for the construction of the new central police station was awarded to Lewis M. Witherell, the lowest bidder. The bids were: L. M. Witherell, \$19,579; Franklin D. Williams, \$21,218; Henry G. Crapo, \$23,459; Daniel J. Sullivan, \$23,971. The total appropriation was \$30,000, which includes cells and other furnishings.

### INCORPORATIONS

**The Fuel Economizer Co. of America,** Wilmington, Del.; capital, \$1,000,000. Incorporators: F. R. Hansell, George H. B. Martin and S. C. Seymour, all of Philadelphia, Pa.

**Milltown Terra Cotta & Fire Brick Co.,** Milltown, N. J.; capital, \$100,000. Incorporators: Fritz Klenk, Albert Klenk and August Zeltmann.

**Kentucky Rapid Transit Co.,** Dover, Del.; capital, \$10,000,000. Incorporators: F. R. Donahue, Albert J. Shermer and Harry W. Davis, all of Philadelphia.

**Jatibonico Asphalt Mining & Mercantile Co.,** Philadelphia, Pa.; capital, \$2,500,000. Incorporators: F. R. Hansell, George H. B. Martin and S. C. Seymour, all of Philadelphia.

**North Dakota Heat & Power Co.,** Wilmington, Del.; capital, \$200,000. Incorporators: F. M. Shive, S. E. Roberson and Harry W. Davis, all of Wilmington, Del.

**Weaver-Knowlton Stone Co.,** Morgantown, W. Va.; capital, \$25,000. Incorporators: Isaac N. Weaver, George F. Weaver, James W. Knowlton and others.

**Newbern Gas Plant Co.,** Goldsboro, N. C. Incorporators: F. H. Sawyer, L. I. Moore, both of Newbern, N. C., and W. H. Crane, New York. Has franchise to establish gas plant.

**Higgins Hauling & Paving Co.,** St. Louis, Mo. Incorporators: Frank J. Rolfes, Martin Higgins and Bernard Bulte.

**Kansas City Crushed Rock Co.,** Birmingham, Mo.; capital, \$10,000. Incorporators: Northrop Moore, president; Thomas A. Dodds, vice-president; C. B. Young, secretary and treasurer. Has plant with daily capacity of 600 yards crushed rock; office of company, 322 New Ridge Building, Kansas City, Mo.

**Howard A. Pierce Electric Light Co.,** Hamburg, N. Y.; electric light, heat and power; capital, \$30,000. Incorporators: Howard A. Pierce, Elizabeth Pierce, Laura S. Frank, all of Hamburg, N. Y.

**George M. Brewster Construction Co.,** Tenafly, N. J.; general contracting, engineering and construction business; capital, \$100,000. Incorporators: George M. Brewster and John W. Brewster, both of Tenafly, N. J.; Walter Scott, Hackensack, N. J.

**Murphysboro Construction Co.,** Murphysboro, Ill.; general contracting; capital, \$10,000. Incorporators: John J. Borgers, A. L. Smith, W. C. Alexander and R. W. Watson, all of Murphysboro, Ill.

## PROPOSALS

### PAVING AND CURBING Notice to Contractors

Pine Bluff, Ark.

Notice is hereby given that the Board of Improvement of Paving District No. 26 in the City of Pine Bluff, Arkansas, will receive bids until October 16, 1909, 12 o'clock noon, for the construction of 32,000 sq. yds. pavement and curbing in said district, according to specifications, on file in the office of E. Hale, City Engineer, Pine Bluff, Ark., and the Secretary of said Board of Improvement. Bids to be upon the following material: Vitrified brick, bitulithic and creosoted wood blocks. Each bid must be accompanied with a certified check for one thousand dollars payable to the Treasurer of said district, conditioned that if awarded contract the successful bidder will enter into bond to carry out said contract. Board reserves the right to reject any and all bids.

E. A. SHEPPARD, Chairman.  
C. H. TRIPLETT, Secretary.  
(14-15)

### FURNISHING GAS LAMP POSTS.

Muskogee, Okla.

The City of Muskogee will receive bids up to 5 o'clock p. m., October 18, 1909, for the furnishing of 50 gas lamp posts F. O. B. Muskogee. Designs of posts must accompany all bids.

CHAS. WHEELER, JR., City Clerk.  
(13-14)

### ELECTRIC MOTORS

Toronto, Ont.

Tenders will be received by the City of Toronto, Canada, up till noon of Thursday, October 14, for the following electric motors. For specifications and form of tender apply to the City Engineer:

- 4—1,500-H.P. Synchronous Motors.
  - 2—1,500-H.P. Induction Motors.
  - 4—500-H.P. Synchronous Motors.
  - 4—500-H.P. Induction Motors.
  - 2—225-H.P. Synchronous Motors.
- With exciters, switchboards, connecting material, etc.

### WATER WORKS IMPROVEMENT BONDS

Coleman, Tex.

The City Council of the city of Coleman is now receiving bids for \$30,000 water works improvement bonds, dated September 1, 1909, due in 40 years, option city after 15 years; 5 per cent interest, payable semi-annually in Austin, Tex., or St. Louis, option holder.

Bids should be addressed to  
W. Z. CHAMPION,  
Secretary.

### WATER WORKS SYSTEM.

Carroll, Neb.

Sealed bids for a waterworks system will be received by the village of Carroll, Neb., on October 8, 1909. Work consists of the following approximate amounts:

One and one-fourth miles of 8-inch to 4-inch mains, steel tower and tank, gasoline engine, deep well pump, well, pump house, etc. Check required is 10 per cent of bid, and bids may be made on all or part of the work. Plans can be seen at the office of the Village Clerk or Mayor or may be obtained by remitting \$3 to Chas. P. Chase, Engineer, Chase Block, Clinton, Ia.

### TURBINE PUMPS

Toronto, Ont.

Tenders will be received by the City of Toronto, Canada, up till noon of Thursday, October 14, for the following turbine pumps. For specifications and form of tender apply to the City Engineer.

- 4—13½ million gallon pumps, 100 pounds pressure.
  - 2—5 million gallon pumps, 300 pounds pressure.
  - 2—10 million gallon pumps, 65 pounds pressure.
  - 2—10 million gallon pumps, 110 pounds pressure.
  - 2—6½ million gallon pumps, 90 pounds pressure.
  - 2—6½ million gallon pumps, 160 pounds pressure.
  - 2—1½ million gallon pumps, 65 pounds pressure.
  - 2—1½ million gallon pumps, 110 pounds pressure.
- With valves, piping, bed plates, couplings, etc.

### PUMPS, MOTORS, ETC.

#### Bids Wanted

Spokane, Wash.

Sealed proposals will be received by the Board of Public Works of the City of Spokane, Washington, until 2 o'clock p. m., Friday, October 8, 1909, for the following equipment, plans and specifications for which are on file with the Board of Public Works.

Bids must be submitted in duplicate, one copy addressed to the Mayor and one to the Board of Public Works; the copy filed with the Board of Public Works must be accompanied by a certified check for ten per cent of the amount of the bid submitted.

#### Equipment

- 3—5-million-gallon multi-stage centrifugal pumps.
- 1—650-hp. horizontal water wheel.
- 3—Induction motors, switchboard and connections.

By order of the Board of Public Works,  
J. T. O'BRIEN,  
Secretary.  
(12-14)

### MACADAMIZING Notice to Contractors

Bristol, Tenn.

Sealed bids will be received at the office of Sullivan County Road Commissioners in Bristol, Tennessee, up to 1 o'clock p. m., Saturday, October 9, 1909, for the grading and macadamizing of about sixty miles of roads in Sullivan County, Tennessee.

Profiles and specifications can be seen in the engineer's office after October 1.

The right to reject any and all bids is reserved. Certified check for two per cent of aggregate bid will be required from all bidders.

September 8, 1909.

JOHN H. CALDWELL,  
JOHN W. SWADLEY,  
JOHN G. PRESTON,  
Commissioners.  
F. G. PHILLIPS,  
Engineer.

### RIVER CROSSING.

Sheboygan, Wis., Sept. 18, 1909.

Sealed proposals will be received at the office of the Water Commission of the city of Sheboygan, Wis., until October 9, 1909, at 3 o'clock p. m., for furnishing all the necessary equipment and labor and for furnishing all the material, excepting valves, lead, jute, cast-iron pipe and specials, necessary to the construction and completion of a twelve (12") inch Sheboygan River crossing at Niagara Ave., approximately 300 feet, according to plans and specifications on file in the office of the Water Commission. Work to be completed on or before December 1, 1909.

Bidders will be required to state price per lineal foot for doing the above work, including the necessary dredging, and also for doing the work excepting the dredging.

Bonds to accompany bids required in the penal sum of \$1,000.00 or in lieu thereof the bidder may deposit with the Water Commission the sum of \$500.00 in money.

All money deposited will be returned to unsuccessful bidders on award of contract and to successful bidders when contract is entered into.

The City Water Commission expressly reserves the right to reject any one or all bids.

THEO. DIECKMANN,  
President of the Board of Water Commissioners.

### GRADING AND MACADAMIZING.

Burlington, N. C.

Sealed proposals will be received by the City Clerk of Burlington, N. C., till 10 a. m. October 7, 1909, for the grading and macadamizing of several streets. The city has available for this purpose \$25,000.

Plans, profiles and specifications will be on file at the engineer's office after September 29, and copies of the specifications, forms of proposals, etc., may be obtained from the engineer by depositing \$5, which will be refunded on the return of specifications.

No bid will be considered unless accompanied by a certified check for \$1,500, unless bid is for concrete work only, in which event a \$200 certified check will be required.

The right is reserved to reject any or all bids.

A. F. BARRETT, Mayor.  
JAS. P. MONTGOMERY, City Clerk.  
CAROLINA ENGINEERING CO.,  
L. C. Carter, General Manager,  
Engineers.